

June 1952

## house + home

edition

**42 pages on air conditioning**

Is it the homebuilders' great new sales tool? (p. 82)

What architects are doing about it (p. 90)

What builders are doing about it (p. 96)

What manufacturers are doing about it (p. 102)

**Lift slab house**

Dramatic tour de force opens a new field (p. 130)

**New framing system**

Architect Johansen develops two all-purpose pieces of millwork

to make modern post and beam construction easy, inexpensive, flexible and precise (p. 124)

**Development shopping center**

Good parking and shading ideas from Baldwin Hills Village (p. 148)

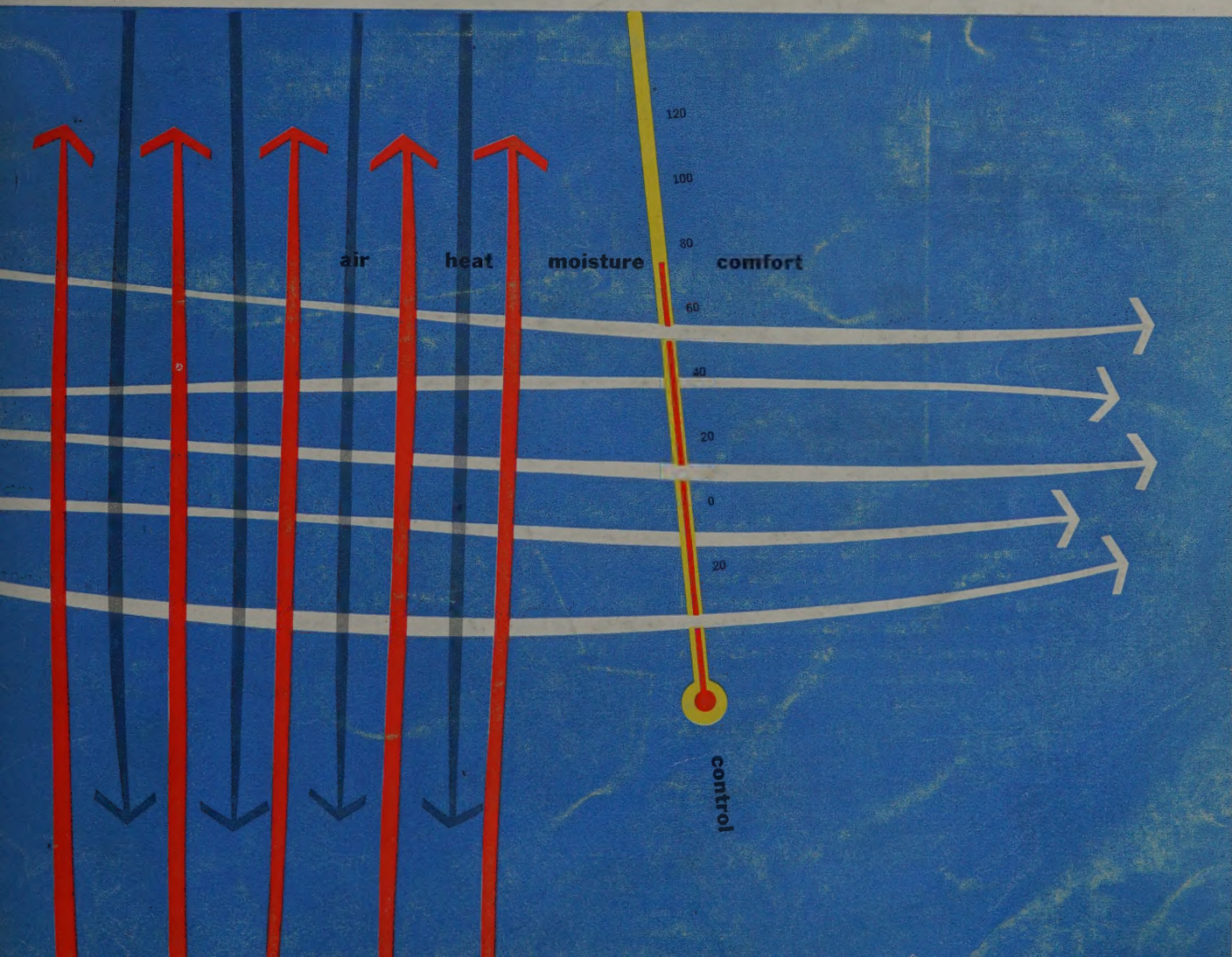
**Builder development**

Big lots and modern design double sales near colonial-minded Philadelphia (p. 138)

**Remodeling**

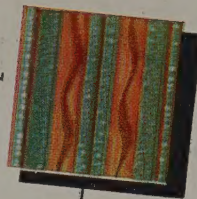
How to save money salvaging an old white elephant (p. 142)

Illinois U Library

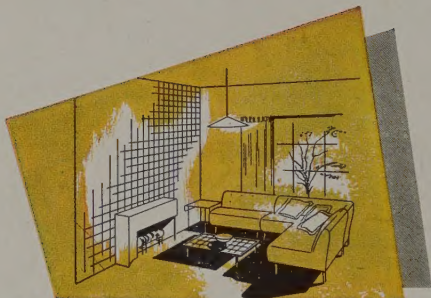




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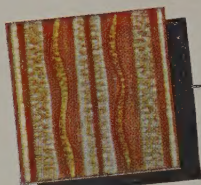
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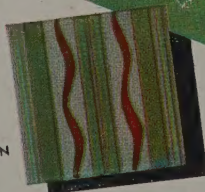
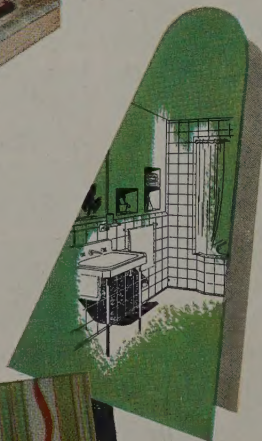
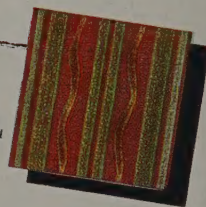
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## 49 NEWS

## 66 LETTERS

## 78 BEHIND THE BLUEPRINTS

## 81 EDITORIAL —Year round air conditioning

## 82 Is residential air conditioning in for a boom?

## 85 What are Dallas &amp; Houston builders doing?

## 89 How are architects designing for air conditioning?

## 1. San Antonio house by Ford &amp; Rogers

## 2. Dallas house by DeWitt &amp; Swank

## 96 What are the plans of the nation's builders?

## 102 What do builders want, manufacturers promise?

## 107 What equipment is on the market?

## 112 News about duct systems designed for air conditioning and heating

## 115 Advice about air conditioning

## 116 What's happening in residential heating?

## 124 Textbook house

## 130 Lift slab house

## 134 Where the presidential candidates stand

## 138 Custom-speculators: modern houses in a conservative stronghold

## 142 Raze, remodel . . . or rebuild?

## 148 Baldwin Hills builds a shopping center, a case study for builder-developers

## 160 REVIEWS

## 168 PRODUCT NEWS

## 196 TECHNICAL PUBLICATIONS

Cover: Robert Brownjohn



# ESPECIALLY FOR THE ARCHITECT

Designed by Architect Finn Juhl, the new line of Baker Modern is conceived from the architect's viewpoint in style and flexibility. Several pieces are currently included in the "Good Design" exhibit.



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# Regulation X Relaxed So Slightly Builders Renew Cry to Junk It

When the long-delayed relaxation of Regulation X credit controls on housing was finally announced June 9 by HHFA and the Federal Reserve, most builders felt the government had labored and brought forth a mouse. During a widely-advertised month of deliberation, sales had slumped as buyers decided to await better credit rules. Then the two agencies cut 20% off the cash required to buy a \$25,000 home and reduced down payments in the \$5,000 to \$7,000 bracket as much as 50%, but made only insignificant changes in down payments for the important middle bracket from \$11,000 to \$14,000 (see table).

The relaxation order left federal restrictions on mortgage amortization unchanged at 25 years for housing valued at \$12,000 or less and 20 years on higher priced housing. Down payments on over 4-unit housing also were eased on a schedule not shown here which ranged from 10% at \$7,000 to 40% at \$25,000, compared to 17 to 50% under the old rules. The Fed said it was still "considering" relaxing Regulation X for non-residential construction.

**Yelps of pain.** Loudest of the immediate squawks came from Executive Vice President Frank Cortright of NAHB: "It's utterly inadequate—not even approaching what we expected. We will continue efforts with Congress to have (Reg. X) further modified or eliminated." (Two days later, the House banking committee obliged by voting to kill all credit controls. The issue probably would wind up in conference between the House and Senate [see p. 58].) Even the VA was reported not entirely pleased with the new order, which still left a hefty bump between down payments on

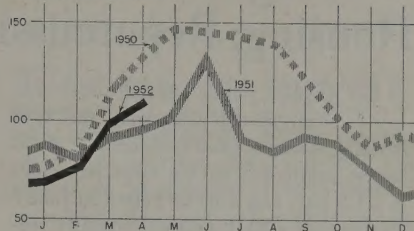
\$12,000 and \$13,000 homes—one of the most criticized features of the old rules.

On more middle ground, Executive Vice President Norman Strunk of the US Savings & Loan League expressed disappointment that down payments were cut only to 40% instead of to 33% as some advance reports had promised. But Strunk forecast that the eased terms might raise sales of higher priced houses by one-third. To mortgage broker James Rouse of Baltimore, the relaxation was "unfortunate" because it could impel builders to start more homes than they can sell. Said Rouse: "I think we are already going as hard as the market can take it."

**Steel strike woes.** Renewal of the steel strike after the Supreme Court ruled against Presidential seizure gave builders another worry. In its big mid-May relaxation of materials controls (AF, May '52, p. 49), NPA had announced that homebuilders could self-authorize 1,500 pounds of new domestic structural steel shapes and 250 lbs. of aluminum per house after July 1, in addition to their present allowances

## HOUSING STARTS

IN THOUSANDS OF UNITS



Source: Bureau of Labor Statistics

**APRIL'S UPSHOOT** in housing starts pushed the total for 1952 to date (347,900) close to the mark for the first four months of last year (356,500). Falling in line with industry forecasts, the Dept. of Commerce hiked its estimate of 1952 private starts to 1,050,000, which would be second only to 1950 and ahead of 1951's revised private starts total (1,020,200).

of steel and copper. But NPA made it clear the increase hinged on continued steel production. The day after the new walkout began, NPA Administrator Henry Fowler repeated the warning: if the tie-up lasts long enough, NPA will have to cut back. The first step, he said, would be suspension of the July 1 relaxations. NPA men figured a two week steel tie-up would be about all the country could stand without tightening the allocation belt.

**Big inventories.** Not all the experts were gloomy, however. At the mid-May convention of the National Association of Purchasing Agents, not a worry was voiced about shortages or higher prices, despite the threat of a steel strike. A few days later, the tie-up itself triggered no immediate rush to buy by manufacturers. At 55% of normal, warehouse inventories were higher than at any time since Korea.

## RICHARDS QUILTS as FHA chief to enter mortgage banking

After 17½ years with FHA, the last five of them as its \$15,000-a-year commissioner, 52-year-old Franklin D. Richards took the course followed by many another able public servant. "The time has come," Richards wrote President Truman, "when I must consider the higher financial compensation of private industry." His resignation would be effective June 30.

On July 1, lawyer Richards planned to open shop as a mortgage banking and housing consultant firm in Washington. Title: Franklin D. Richards & Associates. It was understood two of his closest FHAides will move with him: Assistant to the Commissioner Donald Alstrup and Assistant Commissioner for Field Operations Herbert C. Redman. Later, Richards hoped to open an office in his native Utah, where from 1934 to 1941 he was State FHA chief. Probable temporary successor at FHA: deputy commissioner Walter L. Greene.

### RELAXED HOUSING CREDIT RULES

#### FHA AND CONVENTIONAL LOANS

Value	New Terms		Old Terms	
	Down payment		Down payment	
\$ 5,000	5 %	\$ 250	10 %	\$ 500
6,000	5	300	10	600
7,000	5	350	10	700
8,000	11.9	950	15	1,200
9,000	13.3	1,200	15	1,350
10,000	14.5	1,450	15	1,500
11,000	17.3	1,900	20	2,200
12,000	19.6	2,350	20	2,400
13,000	21.5	2,800	23.1	3,000
14,000	23.2	3,250	25.7	3,600
15,000	24.7	3,700	28.0	4,200
16,000	26.6	4,250	31.2	5,000
17,000	28.2	4,800	34.1	5,800
18,000	29.7	5,350	36.7	6,600
19,000	31.1	5,900	38.9	7,400
20,000	32.2	6,450	41.0	8,200
21,000	33.3	7,000	43.3	9,100
22,000	35.2	7,750	45.5	10,000
23,000	37.0	8,500	47.4	10,900
24,000	38.5	9,250	49.2	11,800
25,000	40.0	10,000	50.0	12,500

#### VA LOANS

Value	New Terms		Old Terms	
	Down payment		Down payment	
\$5,000	closing costs	4 %	\$ 200	
6,000	closing costs	4	240	
7,000	closing costs	4	280	
8,000	4.8 %	\$ 380	6	480
9,000	5.3	480	6	540
10,000	5.8	580	6	600
11,000	6.7	740	8	880
12,000	7.5	900	8	960
13,000	11.2	1,450	13.8	1,790
14,000	14.3	2,000	18.7	2,620
15,000	17.0	2,550	23.0	3,450
16,000	19.4	3,100	26.2	4,200
17,000	21.6	3,670	29.1	4,950
18,000	23.6	4,240	31.7	5,700
19,000	25.3	4,810	33.9	6,450
20,000	26.9	5,380	36.0	7,200
21,000	28.3	5,950	38.3	8,050
22,000	30.2	6,650	40.5	8,900
22,000	32.0	7,350	42.4	9,750
24,000	33.5	8,050	44.2	10,600
25,000	35.0	8,750	45.0	11,250



# Los Angeles Casts Big Vote Against Public Housing; Repercussions Seen in Congress

In Los Angeles, public housing suffered its worst defeat at the polls since the 1949 Housing Act was passed. After one of the hottest campaigns on the issue yet waged in a US city, Los Angeles voters on June 3 disapproved a \$110 million federally subsidized program 378,343 to 258,718. Even some leading opponents of public housing were surprised at the margin. Said builder Fritz Burns: "I wouldn't have bet on more than 51% of the vote for our side." Actual result: 59.4% against public housing; 40.6% for.

**Effect: doubtful.** The outcome left the fate of the 10,000 unit program up in the air. Last December, the L. A. City Council resolved, 8-7, to break its 1949 contract with the city housing authority. Public housers fought the case to the California Supreme Court, which ruled the city must carry out its contract. With the returns in, realtors and builders proclaimed the city was bound by a people's mandate to halt the program despite the Public Housing Administration's warning it will then sue the city for \$13 million federal funds already spent.

**Upset in Akron.** Elsewhere, spring balloting was bringing in still sharper defeats for public housing. Akron, Ohio (pop. 275,000) is a strong union town. CIO rubber workers claim 35,000 Akron members. Other CIO and AFL unions—whose spokesmen unanimously plug public housing projects—claim another 35,000. Akron is also a city of 69% home ownership. At the May 6 primary, voters said no to construction of 400 more public housing units by a margin of 43,620 to 21,201. Theme of the battle against public housing: "There is no free lunch." Commented builder Clinton R. Miller, a former president of Akron's real estate board who took a leading part in the campaign: "If it happens here it must indicate a trend."

**Other returns.** There was some evidence that Miller was right in claiming voter opposition to public housing was becoming a trend. Other returns last month:

- ▶ Columbia, Mo. voted 2,669 to 1,107 against creation of a local housing authority.
- ▶ Cleburne, Tex. defeated a housing project 1,112 to 635.
- ▶ Decatur, Ill. rejected public housing by a two-to-one margin.

Since the '49 Housing Act set up an eight-year program of 835,000 public housing units, 50 communities had voted on the issue. So far, public housing had won 11 elections (mostly in small towns), lost 39 (including Seattle, Portland, Houston and Milwaukee).

Associated Press



TRUMAN TALKS TO PUBLIC HOUSERS

## PUBLIC HOUSERS attack FHA as Congress cuts program

Public housing was amidst its most important legislative fight since passage of the 1949 Housing Act. In April, the House voted a crippling 5,000-unit-per-year ceiling on public housing. On June 3, the Senate, by voice vote, bounced that back up to 45,000 units.\* But no cheers came from public housers. The Senate's recommendation was still 5,000 units below the level permitted public housing in the expiring fiscal year. Though the Senate action indicated the House cut would not stand in conference, it was also more and more possible that the compromise would be around 25,000 units—a big setback for public housing.

For the first time, moreover, this year's Congressional lid will be a meaningful regulator of public housing. This fiscal year, say experts, 50,000 units are about all that the Public Housing Administration could have put under construction anyway. But the program was fast gathering momentum. Only 10,200 of this fiscal year's 50,000 units were begun by January 1. PHA Commissioner John Taylor Egan has promised all 50,000 will be underway by June 30. Physically, PHA should be able to start another 50,000 units between July 1 and Dec. 30. Some observers, in fact,

\*The Senate also erased Rep. Ralph W. Gwinn's anti-red rider, which would bar any member of an organization on the attorney general's subversive list from public housing. This had caused postponement of a \$167 million mid-April housing bond issue. On the floor, Sen. Richard Nixon (R, Calif.) was ruled out of order when he offered an amendment prohibiting public housing in cities (like Los Angeles) where a popular referendum has gone against public housing.

are betting this will be the public housers' strategy: start projects as fast as possible this fall and then come before Congress next January for authority to build more, particularly if the red-tape ridden private defense housing program falls into a slump.

**Counteroffensive.** Things legislative being the way they were, it should hardly have surprised builders that proponents of public housing last month opened a counter-offensive by attacking FHA. The new line was laid down by Manhattan attorney Charles Abrams in a talk to the National Housing Conference at Washington's Hotel Statler (AF, May '52, p. 51). Charged Abrams: "The smell of scandal lurks under FHA deals from Long Island to Los Angeles . . . I believe FHA is the reason for the anti-public housing lobby and as long as it thrives, public housing will be under attack. To conceal [private housing's] own form of socialization, public housing has been chosen as a target, not because it competes with the private builder but to divert attention from the mammoth socialization of risk which has been effected through FHA formula . . . The depredations under FHA if ever disclosed would make the Yazoo-land frauds look like a piker's handout."

Abrams offered five specific (but wholly undocumented) charges:

- ▶ FHA commitments are "salable . . . on the open market." Moreover, "there isn't another agency in government where a small-time official possesses the equivalent power to turn paper into gold by the stroke of a pen."
- ▶ Use of FHA insurance to develop hotels is an abuse of FHA's purpose.
- ▶ "Dummy leases under which speculators who buy land at nominal prices lease it to themselves at big rents have become routine."
- ▶ "Applications on FHA insurance are expected to misrepresent actual costs of architects fees, building costs, land costs and other items. FHA knows this and expects it."

**Echoes & ripples.** Other speakers zeroed in on the same target. Advised fair-dealing Sen. Hubert Humphrey (D, Minn.): "Punish those who punish you. Go on out and get 'em or they're going to get you." Needed Sen. Paul Douglas (D, Ill.): "The group that has received the largest guarantee against loss through the federal government is the group protesting loudest against government help to the low-income families." Urged John Edelman, Washington representative of the CIO Textile Workers Union: "[Public] housers need not go out and win over the voters. A better approach is . . . the mass organizations: the AFL, the CIO, neighborhood movements and church movements. Work through them in terms of their interest. Speak of employment to the building trades unions; speak of eradication of social disease to the



churches; speak of middle-income housing to the CIO . . . Get housing into the Community Chest."

At the final session, President Truman injected himself personally into the row in a surprise "whistle stop speech" to 400 NHC banqueters. Truman flailed away bitingly but unspecifically at his old target, "the real estate lobby," which he accused of "trying to choke public housing to death by cutting off appropriations." Urging NHC to back not only his demand for a 75,000 unit public housing program, but also other Administration policies, the Chief Executive remarked, "We might as well do a first class job of lobbying while we're at it." (Replying in kind, the National Association of Real Estate Boards reiterated its view that "political public housing . . . is inequitable, is a failure from the standpoint of slum clearance and rehabilitation . . . is in itself a long step towards communism.")

**Policy stand.** The Housing Conference spelled out its new policies in 17 resolutions which:

- ▶ Formally urged a Congressional investigation of charges that FHA and VA housing has involved "excessive speculative profits, . . . favoritism" and "improper financial and administrative practices."
- ▶ Deplored "reduction of space standards" in recent housing; urged Congress to require FHA and VA builders to give warranties.
- ▶ Asked Congress to approve the full 135,000 public housing units permitted by the Housing Act of 1949 next year.
- ▶ Urged FHA to require sponsors of co-operative housing under Sec. 213 to "make available" to prospective stock buyers the details of "financing, construction and management."
- ▶ Urged increasing use of vacant land for federally aided redevelopment projects. (Sen. Douglas remarked that this would violate the intent of Congress in enacting the program.)

**Second round.** Two weeks later, before a Manhattan conference on racial discrimination in housing, attorney Abrams expanded his attack on FHA. He asserted that from 1935 to 1949 the agency "advocated racial restrictive covenants." His explanation: "FHA was staffed by little men with little minds. Their prejudices, acquired in the suburbs in which they lived, were carried to their desks." Although since 1949 FHA has specifically barred its insurance from homes bearing racial restrictions, Abrams charged that "indications are that the old policy still prevails in the field."

Through the hubbub, the man most concerned, FHA Commissioner Franklin D. Richards, maintained a dignified, if pained, public silence. Asked by HOUSE & HOME for comment, Commissioner Richards wrote: "I wish that there were some way of answering vague and baseless accusations which seem to have the quality of making headlines . . . Any real study of FHA mortgage insurance, which is a completely voluntary system, will reveal its enduring benefits. . ."

## Strike Wave Hits Building; Picket Line Violence Brings Injunction at Levittown

Spring brought a wave of strikes by AFL building tradesmen. Construction trades strikes are an old May custom, because many of the nation's major wage agreements expire then. But this year's crop of walkouts got a big boost from the Wage Stabilization's advance approval of a 22½¢ an hour wage and welfare increase. At the beginning of this month at least six major strikes were in progress affecting 14,600 workmen directly and an untold number indirectly. Settled in May were at least 17 more strikes, 12 of them involving wage or welfare disputes, five of them stemming from jurisdictional arguments.

At one point, the rise in work stoppages over which union was to handle which job so alarmed Secretary Joseph D. Keenan of the AFL Building and Construction Trades Department that he warned: Labor unions, by wildcat walkouts and jurisdictional disputes, are "literally cutting themselves out and if they don't stop bickering, labor will go back 20 years—and it will be hard to get back on top again."

**Pitched battle.** To homebuilders, the dispute at Levittown, Pa. commanded first attention. The AFL Building and Construction Trades Council of Philadelphia began a major effort to force builder William J. Levitt to use union labor for his 16,000-home development in nearby Bucks Co. As he has on Long Island for years, Levitt was building with an open shop. Moreover, the AFL objected to Levitt's waste-saving practice of allowing skilled mechanics to do a variety of jobs. It charged he was paying on a piecework basis (which Levitt denied).

On May 10 some 600 Levittown workers were unable to get to work because just about that many pickets were marching before the project gates. Car windows were smashed, tires ripped, rocks hurled, and some persons were hurt, though not seriously. On May 14 Bucks County Judge

Hiram H. Keller issued a temporary restraining order limiting pickets to five at each entrance of the \$20 million development. The next day there were still 150 pickets on hand (most of them walking their beat before going off to their regular jobs). A rock was flung through an auto windshield. No one went to work. On May 16, when Levitt tried to resume work at his concrete mixing plant, 400 pickets were there. Stone-throwers peppered the cars of workers, the workers themselves and work buildings.

**State troops.** A deputy sheriff charged with enforcing Judge Keller's restraining order phoned Gov. John S. Fine. Six state troopers soon arrived and by May 19 there were 40, armed with riot sticks. So were 200 pickets. A trooper stood up in an open patrol car. "You boys are acting in an unlawful way," he said. "So get going." The pickets melted down to the legal limit.

Judge Keller then issued an injunction limiting pickets to from two to five at 20 specified gates and the AFL agreed to comply. Said a Levitt spokesman: "... worst demonstration of labor lawlessness that the building trades of this area have ever attempted." Said AFL attorney M. H. Syme: "We do not condone violence . . . we condemn it and regret it."

**Still festering.** Six major strikes still going on across the country involved wage and welfare fund demands:

▶ Some 12,000 carpenters in the San Francisco Bay Area returned to work June 2 after winning their original demands: a 15¢ increase on their \$2.45 hourly wage, plus a 7½¢ employer contribution to the welfare fund. But thousands of other carpenters were still out in 42 counties seeking a 21¢ boost. The strike began March 31.

▶ In Chicago, 600 AFL Clay Workers struck eight brickmaking plants May 1 for a 15¢ increase on their \$1.56 to \$1.79 scale. Chi-



AFL PICKET HURLS ROCK AT TRUCK TRYING TO LEAVE CEMENT MIXING AREA AT LEVITTOWN, PA.



ago's daily production of 1,250,000 common bricks was knocked out. Work on 2,500 homes was halted. Construction on 90% of the city's commercial and industrial projects was delayed and 5,000 nonstriking craftsmen idled.

▶ In Chattanooga, carpenters, cement finishers, iron workers, operating engineers, laborers, and truck drivers struck May 1 for something in excess of the 22½¢ WSB-approved increase. Work stopped on homes and some 100 other projects.

▶ In Philadelphia, 1,000 operating engineers struck May 1 over some 40 issues including retroactive pay back to 1951, a pension plan, a 37-item safety code and working condition changes contractors call featherbedding. Philadelphia's public works program was tied up as well as state highway projects, utility and railroad work, including sidings for the new Fairless Works.

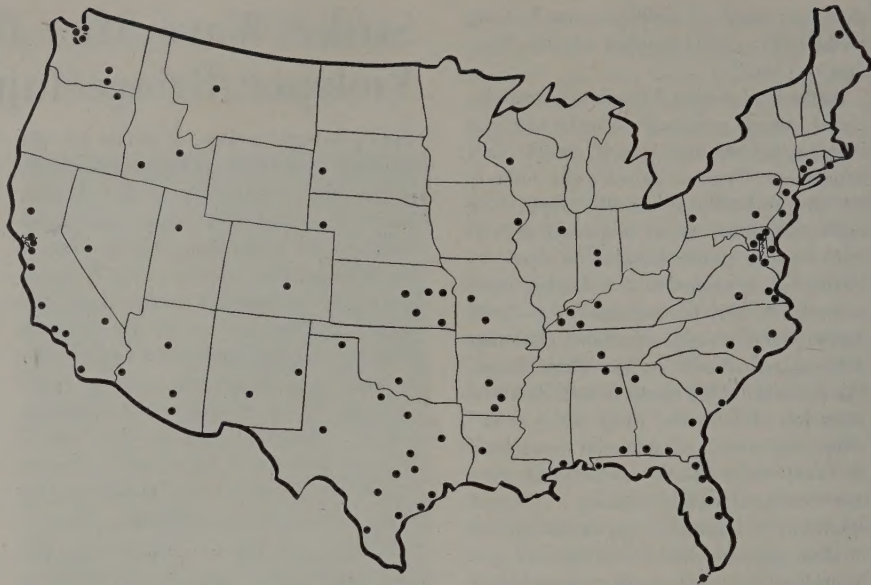
▶ In Niagara Falls, 1,000 carpenters, laborers and lathers stopped work on the city's new airport, an Army priority job.

▶ In Wilmington, AFL sheet metal workers struck seven contractors when they failed to agree on a health and welfare plan.

**Jurisdictional disputes.** The Fairless Works was further disturbed when 8,500 AFL bridge & structural iron workers left their jobs at the steel plant itself in a dispute with six other construction trades over who was to install machinery. It was the third such stoppage in recent months. After four days the AFL's National Board of Jurisdiction Awards abruptly ordered the men to return to work. At a new Atomic Energy Commission plant in Fernald, Ohio, a jurisdictional dispute arose between members of the carpenters and laborers union over who was to dismantle the wooden forms in which concrete was poured. After a scuffle in which two were injured, 1,000 laborers were told to lay off the rest of the day until tempers had quieted down.

There were two jurisdictional strikes in New Jersey, one between laborers and carpenters on who should handle the stripping of lumber; another between carpenters and iron workers over tubular scaffolding.

In St. Louis, a two-day jurisdictional strike at a new \$45 million Union Electric Co. power plant, oddly, did a great deal of good. The AFL Building and Construction Trades Council had long been considering the problem (said Council Secretary Joseph C. Payne: "These jurisdictional fights are hurting the council as well as the boys themselves"). Following the Union Electric trouble, 33 trades, representing 27,000 members, decided they had had enough: hereafter unions not directly involved would continue at work and ignore picket lines.



**RENT CONTROL** in critical defense housing areas (to the homebuilding industry probably the least known phase of the defense housing program) embraced its 103rd locality last month when Labette County, Kan. was clamped under controls. The 103 areas lie in 38 states (map, above). Biggest concentrations are in Texas (13), California (10) and around Chesapeake Bay (8). So far, 56 defense housing areas have escaped reimposition of rent control, which rolls back rents on private homes, apartments, motels, trailer courts and rooming houses regardless of date of construction.

Of the 103 localities, 14 had shaken free of defense rent control by local action. Rent czar Tighe Woods had not contested their decisions. But the Senate defeated an effort to amend the Defense Production Act to make it impossible for Woods to do so.

## Builders' Ire Grows at Defense Housing Red Tape; 16,534 Units Begun So Far

Danger signals began appearing last month that homebuilders were getting fed up with the defense housing program. It was too soon to call it a trend. It might be just a bigger than usual wave of the industry's normal grouching. But more and more builders were sounding off about HHFA, FHA and even FNMA red tape—besides their continuing troubles with defense mortgages and lack of community facilities. A report to NAHB directors admitted "builders have lost some of their enthusiasm for the defense housing program. . . . Many of them are beginning to wonder about the real necessity (for it)." Other symptoms:

**Community resistance,** Pine Bluff, Ark. voted down a bond issue to finance water and sewer expansion necessary before builder Cotton Barnes could erect 150 defense homes for which he had FNMA takeouts. Reason: military expansion there fell behind schedule and the town was experiencing too many vacancies. While the Pentagon reassured Pine Bluff this was just a lull, the FNMA takeout expired and banks refused construction money.

Builder Joe Merrion of Chicago, moving into the Quad City (Ill.-Iowa) area to build 300 defense homes, found costs so high he said he will get "a better deal" un-

der FHA Title II than under the defense housing program unless FHA agrees to use its discretionary power to boost mortgage ceilings from \$8,100 to \$9,000 in high cost areas. So far, FHA has refused to do this anywhere, builders charge.

**'More hurt than help.'** Said Chicago builder Nate Manilow: "The way it now works, the defense housing program hurts more than helps a community. Until they can eliminate some of the fuss and bother and red tape, I'm not interested."

Major administrative trouble so far cleared away by defense builders involved FHA valuations. Originally, FHA insisted on using its capitalization formula in appraising Title IX rental units (H&H, Mar. '52, p. 55). Builders found resulting commitments too low to permit construction. NAHB persuaded FHA to make three changes: reduce the vacancy factor from 7 to 2½%, shift maintenance and repair from a long term rental to a two year basis, reduce management cost allowances from 5 to 3%. Now commitments generally run high enough to persuade builders to proceed. By May 14, HHFA counted 16,354 defense homes under way or completed—some 20.2% of the 80,915 units programmed in 162 areas.



# Record Postwar Growth of Savings, Loan Associations Sends Assets to \$20 Billion

Last month, the nation's 6,000 savings and loan associations congratulated themselves on reaching a new milestone in their phenomenal postwar growth: their combined total assets had risen over the \$20 billion mark.

No longer the baby they once were in the nation's banking setup, S&Ls now accounted for one-third of US mortgage loans on one- to four-family homes, making them the most important single type of lender in the residential mortgage market. Statistics told the impressive story of S&L financial growth, which is topped only by the spectacular expansion of open-end investments trusts after 1948:

► Since 1940, S&L assets had more than trebled. Biggest growth came with the postwar housing boom. From \$8.7 billion in 1945, S&L assets soared to \$19.2 billion at the end of 1951.

► Savings, pouring into S&Ls at the fastest rate on record during the first quarter of this year, added another \$750 million to put total assets over the \$20 billion mark.

► From 1946 through 1951, public investment in S&L shares rose an average 13.9% a year, compared to an increase of only 7.1% a year for life insurance policy reserves, the runner-up. Mutual savings bank deposits rose only 5.1% and time deposits in commercial banks 3.9% during the same period. And last year, S&Ls outstripped the savings gains of commercial and mutual savings banks dollarwise, too.

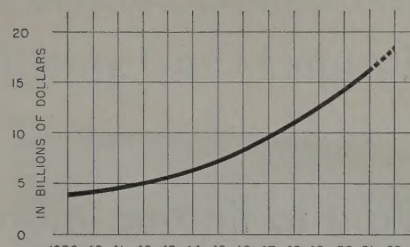
**Salesmanship pays.** The secrets of S&L success are simple. 1) They pay a higher return on savings. Last year, S&L dividends generally ranged from 2½ to 3½% vs.

1½ to 2½% on savings and commercial banks. 2) Associations have gone after business aggressively. Member associations of the Federal Home Loan Bank tripled their advertising outlay between 1945 and 1950. They invested heavily in better quarters (asset value of office buildings and equipment rose 150%), and they have tried to be personal and informal, with more emphasis on decorative flowers than pistol-toting guards.

A striking example of what such policies have accomplished is Chicago's First Federal Savings & Loan Association. In 1946, President Morton Bodfish decided to de-emphasize stuffiness, moved the office from tomblike LaSalle St. in Chicago's financial district to the bustling corner of Madison and Dearborn in the Loop, where far more of his workingman customers trod. Bodfish launched gimmicks to encourage thrift from the cradle up. On Saturday's parents can park their children free in Bodfish's basement F.F. Thrift Ranch while they shop. There is even a children's teller window. Result: in 1946, First Federal had 17,000 savers, assets of \$26 million. Today, it boasts 72,000 savers and assets of \$111 million (which makes it third largest in the nation).

**Liquidity problem.** Amid their giant growth, S&Ls have also experienced a big increase in turnover of accounts, which suggests more people are using S&Ls for liquid funds and expect withdrawal requests to be honored instantly as a matter of course (S&Ls can legally insist on 30-days' notice). Yet the postwar housing boom's heavy demand for mortgage credit

## S & L SAVINGS ACCOUNTS



**ACCELERATING CLIMB** In savings accounts of the nation's savings and loan associations added up to a 118.3% increase from 1946 through 1951. US Savings & Loan League estimates another \$2.5 billion rise (dotted line) will bring savings to \$18.5 billion by the end of this year.

has forced S&Ls to let their holdings of cash and government securities drop from about 40% of their savings accounts in 1945 to about 16% at the end of 1951. However, Chairman William K. Divers of the Home Loan Bank Board reported to the National Savings & Loan League's 9th annual convention last month that the ratio of member S&L's reserves to assets had risen from 7.3 to 7.4% last year.

**Dividend rates.** Another problem concerning the 535 delegates to the National League's Washington sessions was how to keep dividend rates to shareholders high and still maintain a big portfolio of 4% VA loans. The National League's answer was a resolution urging Congress to force an interest rate rise. (On this point, the National League's far bigger rival, the US Savings & Loan League [of which Bodfish is chairman] agrees. But US League officials have been urging their members to keep on making GI loans despite the "uneconomic rate" to forestall further direct government lending.)

To most observers, the S&L future looks bullish. Said the Chicago Federal Reserve Bank's bulletin last month: "The problems of maintaining sufficient liquidity and of avoiding insolvency may again rise (as they did in the depression) to plague savings and loan managers. . . . This is not likely to happen so long as real estate prices remain reasonably firm and employment and incomes continue high. Meanwhile, loan associations show every indication of continued rapid growth."

## BUILDING CODES: unification group tries to heal a rift

Along the tortuous path toward reducing the country's 2,500 building codes to a sensible half-dozen or so, one of the biggest hurdles is local and regional jealousy. Chief enemy of code unification so far is the Southern Building Code Congress. Its 217 Dixie members profess to see the threat of a Yankee-federal national building code



**NEW OFFICERS** elected by National Savings & Loan League were (l to r) Clifford P. Allen III of Philadelphia, first vice president; Miss Mary C. Kelly of Ft. Smith, Ark., secretary; Raleigh W. Greene of St. Petersburg, Fla., president; and Alfred G. Peterson of Greenwich, Conn., second vice president.



**Want to line up more  
buyers for your houses?**



**This G-E Dishwasher-Disposall® combination has  
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The "oh's" and "ah's" of today's house-hunters are often heard in the kitchen. There is a new demand for efficient, modern kitchens that eliminate messy garbage-handling and time-wasting dish-doing. That's why home buyers are so greatly influenced when they see a General Electric Dishwasher-Disposall combination already installed.

You'll be giving your houses a brand-new look sales-wise by including a complete G-E Electric Sink. It's the "extra-plus" appeal that sells your houses over competition in the same price range.

The installation cost is almost nothing when you design your kitchen plans with the G-E Dishwasher and Disposall in mind. Furthermore. . .

The cost to you of these General Electric appliances is included right in the selling price of the house! What could be better for you!

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To maintain the design and balance of your kitchen, be sure to specify and install the strong, roomy G-E Cabinets that are modern, matching kitchen equipment. Remember: buyers look for the name General Electric . . . it's their sign of dependability!

#### **NOTE TO ARCHITECTS AND BUILDERS:**

A General Electric Disposall can be installed in *any* kitchen sink. It is specially designed for use with septic tanks, too. Actually helps keep drain lines clean!

Your nearest G-E Major Appliance distributor will gladly discuss costs and kitchen plans with you. The G-E Kitchen Planning Service can help you design bigger, faster sales into your homes! General Electric Company, Louisville 2, Kentucky.

**GENERAL**  **ELECTRIC**



behind the plodding efforts of the Joint Committee on Unification of Building Codes to wrest more uniformity from the rival codes of the nation's major regional building code groups. Lately, mutterings from SBCC had grown so ominous that one worried official of the joint committee confided: "We've almost got a civil war on our hands."

Last month, the JCUBC deemed it wise to make a tactical, conciliatory and semantic retreat. Meeting in Detroit, the committee voted to drop "unification" from its title "to emphasize that the committee (has) no intention of writing a national building code or of superseding existing code writing groups." New name: Joint Committee on Building Codes. That done, the committee plunged ahead with its work by tentatively adopting eight more segments of a building code. Other code news of the month:

► **The Building Officials Conference of America**, one of the joint committee's major supporters, agreed at its convention in Detroit to admit building materials manufacturers to membership (but without power to vote on proposed code revision). This is contingent, however, on a request to merge by BOCA's subordinate affiliate, the Building Officials Foundation, to which some 50 materials firms now belong. BOF Chairman William Gillett, vice president of Detroit Steel Products Co., explained the merger was aimed at attracting more industry money to support BOCA's work, which is chronically on a bare subsistence financial diet. Re-elected BOCA president was strapping Joseph P. Wolff, Detroit building commissioner.

► **Stepping up its efforts to modernize archaic codes**, NAHB began assembling a code kit for local use. The kit will contain such items as a model statute permitting cities to adopt codes by reference, a model ordinance permitting use of substitute or alternate materials. NAHB Technical Director Leonard Haeger announced plans to hold a seminar for building officials at NAHB's annual convention to update them on new housing technology.

### **CMP CRACKDOWN: faucet firm accused of copper violations**

For the first time since CMP began, the National Production Authority accused a US firm of misusing copper. Sterling Faucet Co. of Morgantown, W. Va., one of the nation's largest independent producers of plumbing brass mill products, was charged with illegally receiving nearly 600,000 lbs. of the red metal during the third and fourth quarters of 1951. At an administrative hearing this month, NPA will ask that Sterling be cut off entirely from all controlled materials.

## **Building Industry Warned to Spend More On Research or Face Rising Gov't Control**

Is the building industry (except for materials manufacturers) shirking its responsibility for research to cut the cost of its product, broaden its market?

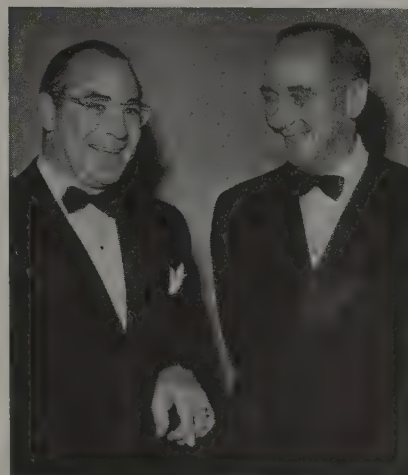
One man who thinks so is Dr. Clifford S. Rassweiler, Johns-Manville vice chairman and research chief. Before 375 black-tied dinner guests at the AIA's middle Atlantic regional conference last month in Philadelphia, Rassweiler took aim on his target and let fly. Said he: "The industrial revolution (of complex, 20th Century discoveries) didn't start until industry began making experimentation a full-time job for organizations of experts. There is no reason for believing that the problems of the building industry will be solved by any less positive action."

**Government shadow.** Building research, theorized Rassweiler, is stuck in the horse and buggy era because the building industry is so fragmented that no single firm can reap a return in line with the big cost of continuous experimenting on design, engineering and construction of buildings. Warned Rassweiler: unless the public is to "give up expectation of the kind of technical advances which have been made in other industries," unless the industry wants government to dictate how buildings shall be built, it had better organize to finance needed research jointly. He explained: "The cost would be high, but not excessive in relation to the industry's income and profit . . . One per cent of the industry's income would provide a research fund of over \$200 million a year. What the industry has to do is set aside a very small but regular percentage of its income for research just as other industries . . ."

**Architects should lead.** As a starter, Rassweiler urged architects to add a separate, small charge to their regular fees, turn the receipts over to AIA for research. "Revolutionary? Sure," he said. "But you might be surprised how much respect your clients would have for you as modern businessmen. And you would be making the most revolutionary move of modern times toward providing your clients with better buildings. It is not necessary to start by spending \$1 million. The important thing is to start."

At the kind of research Rassweiler had in mind, HHFA has been a leader for the housing industry ever since Congress voted it \$2,050,000 for research in 1949. Although subsequent appropriations have been less generous, HHFA next year hopes to spend \$810,000 for housing research.

Jules Schick



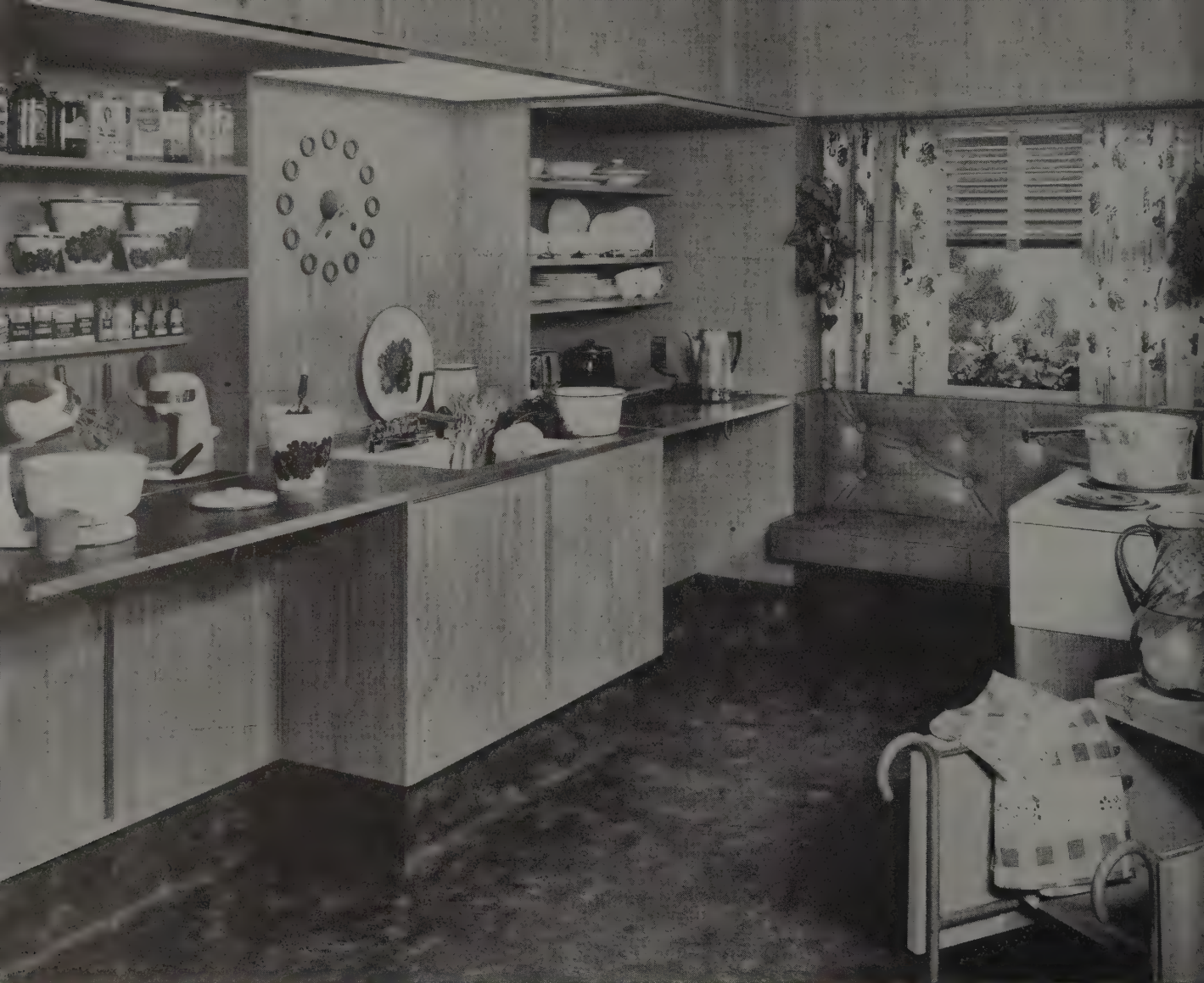
At AIA meeting, Producers' Council Chief A. Naughton Lane (L) chats with Clifford S. Rassweiler, who urged more building research.

Last month, HHFA's dapper research director Joseph Orendorff announced another in a series of studies by which HHFA is trying to show how to cut needless costs out of housing. "To show builders and craftsmen how to take full advantage of already known and accepted time-and-material saving techniques," five houses will be built while HHFA experts stand by with stopwatch and camera. Taxpayer money (\$55,680 of it) will pay for the design and record keeping. Builders Harrell & Lendrum at Urbana, Ill. and builder Frank T. Tufaro at Hartsdale, N. Y. will foot the bill for the homes they erect (which they will be free to sell when the project ends in September).

Primarily, HHFA is trying to show in dollars and cents specifics the price builders (and the public) pay for ignorance of modern techniques. Said Orendorff drily: "Observation of building practices, particularly among smaller contractors, indicates that new research developments are often not followed in general practice."

At Urbana, Harrell & Lendrum have already begun a dry run house 30' x 34' designed by University of Illinois. Later, they will build the same design again, presumably faster and cheaper because their workmen will be better trained. At Hartsdale, Tufaro first will erect a house using his own techniques, then one adapted to his design by New York University technicians from Illinois' Small Homes Council designs, and finally a third house as a speed and cost check.





## This small kitchen offers big kitchen features

**A** BIG kitchen with lots of cabinets and counter space helps sell houses faster, but in today's building market, big kitchens are rare. However, you can build big-kitchen appeal into small kitchens, without closing in the floor area, by using a new cabinet design.

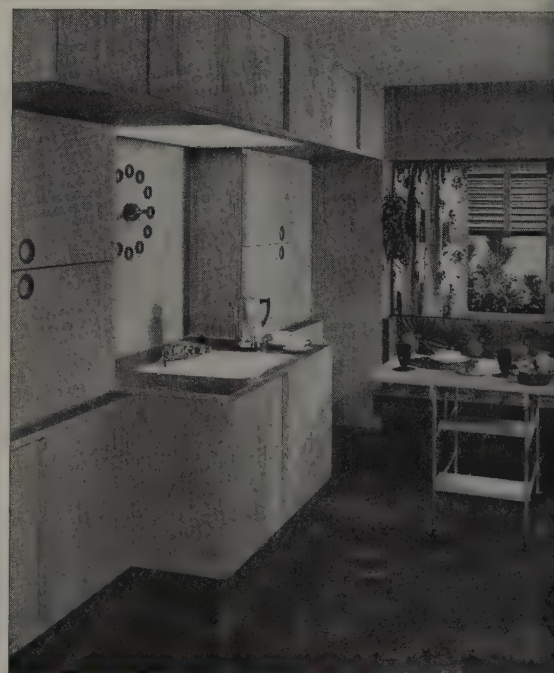
The kitchen shown here is small, yet it has ample storage space and work area. Notice that the cabinets have been made only half the usual depth—most cabinets are unnecessarily deep, anyway—yet no counter space has been sacrificed. The counter tops swing up out of the way when they aren't in use and become the bottom doors that close off the upper cabinets. Drop them and everything on the shelves is within easy reach. Close them and everything is out of sight.

There's another practical kitchen idea under the cabinets. Notice that they are high off the floor to save stooping—

and that the Armstrong's Linoleum Floor is covered up underneath to eliminate dirt-catching corners and do away with baseboard scuff marks.

A practical kitchen like this has strong appeal to feminine prospects. One of its most important sales assets is the floor of Armstrong's Linoleum. Women know how easy it is to keep this floor clean, how long it wears, what colorful charm it adds to a kitchen. Greaseproof and virtually seamless, an Armstrong's Linoleum Floor is the logical choice for kitchens, where both easy care and decorative beauty are important considerations.

**SEND FOR FREE ROOM PLAN.** For a floor plan of this kitchen with cabinet layout, color scheme description, and a complete list of furnishings, write Armstrong Cork Company, Floor Division, 1406 State St., Lancaster, Pa.



## ARMSTRONG'S LINOLEUM FLOORS



# Bills on Housing, Mortgages, Rent Control Approach Semifinal Shape in Congress

In Congress, where politics shape the future economics of the US housing industry, the 1952 crop of legislation had sprouted far enough last month to give a good idea of how it will finally look.

►To bolster the still-prostrate market for defense housing mortgages, Congress appeared firmly committed to another \$900 million inflationary shot in the arm for Fanny May. Against labor and veterans' pressure, legislators would not even suggest a raise in frozen FHA or VA interest rates.

►The new GI Bill of Rights, already passed (361 to 1) by the House, would contain some kind of a clause requiring homebuilders to give a warranty on their product. NAHB was fighting a rear-guard action for modifications, but top brass of the association candidly warned members: "Don't kid yourselves. There's going to be a warranty. There's been too much trouble."

►The Defense Production Act extension seemed likely to tie rent control more firmly than ever to temporary defense economic powers. A June 30 logjam on appropriations was in sight. And housing agencies were finding rough treatment at the hands of appropriations committees. *Fuller details appear in the five stories below and on the next page:*

## DEFENSE MORTGAGE market voted \$900 million FNMA aid

It took the half-dozen senators on the floor only five minutes last month to approve the 1952 housing bill exactly as it was offered by the banking and currency committee. There was no debate, not a flicker of opposition. The measure then went to the House.

The legislative speed arose less from the Senate's sense of urgency about providing a new mortgage crutch for defense housing than from the fact that the banking committee sliced the amount of federal funds to be authorized nearly 50% below the level in the original bill. With the cuts, most opposition melted away. As the bill passed the Senate:

►Federal National Mortgage Association would get \$900 million (instead of \$1.3 billion) for advance takeouts in defense areas. The \$360 million now set aside for defense areas would be available again for over-the-counter purchases of VAs and FHAs in nondefense areas.

►Additional FHA insuring authorization would be cut from \$1 billion to \$400 million.

►New outlay for community facilities in defense areas would be \$40 million instead of \$100 million.

►Public defense housing—still restricted to spots where private enterprise cannot handle the job or to temporary military areas—would get \$50 million instead of the \$200 million HHFA administrator Foley sought.

►Instead of an open-end extension, subsidized farm housing would get a one-year lease on life with a ceiling of \$2 million.

►Federal savings and loans would be empowered to make or buy FHA loans anywhere in the country. (Now, they cannot buy FHA mortgages more than 50 miles from their office.)

'No alternative.' Presenting the bill to the Senate, Chairman Burnet R. Maybank (D.,

S.C.) of the banking committee justified the inflationary expansion of Fanny May in language some mortgage bankers thought provided good evidence that the real trouble with defense mortgages is frozen FHA and VA interest rates. Said Maybank: "There is available no other ready alternative except advance commitments to get the needed defense housing started. There is no prospect of the mortgage market changing in sufficient time and (enough) to make an adequate supply of mortgage funds available to meet defense housing needs promptly."

Most irking to lenders, however, was resumption of Fanny May buying in non-defense areas. As Mortgage Banker Will A. Clarke testified at the banking committee's two-day hearings, "It is purely a matter of pricing a commodity. FHA and VA mortgages are priced out of the market." If interest rates were hiked 1/4%, he said, "the government would not have to pump a billion or so more into the market through Fanny May." Builders, however, were jubilant, thought Fanny May purchasing would thaw many a veterans' housing deal now frozen by lack of 4% money.

**Restrictions for FNMA.** The renewed privilege was hedged with restrictions. FNMA could buy only FHA and VA mortgages written since last Feb. 28 (except defense or disaster mortgages). Lenders could sell FNMA only half of their portfolio of these. Moreover, FNMA would no longer be required to buy at par—an effort, explained Maybank, "to prevent wholesale dumping by mortgagees of their less desirable loans."

One sense-making amendment which the banking committee ignored was offered by NAHB President Alan Brockbank. Instead of a 50% limitation, he suggested that a

lender be permitted to sell to Fanny May only as many dollars worth of mortgages as he buys after April 1, 1952. This would make Fanny May a "true revolving fund," he argued. HHFA administrator Foley squashed another NAHB proposal: instead of public defense housing, raise mortgage limits on Sec. 8, Title I FHA loans from \$4,750 to \$6,000, insure mortgages to 95% of cost (not value) and grant an unlimited FNMA market. Said Foley: "That would out-do Title VI."

## APPROPRIATIONS for housing agencies upped by Senate

A Republican-Southern Democrat coalition in the House had voted a huge slice in appropriations for HHFA and its family of housing agencies (H&H, Apr. '52, p. 34). Last month, the Senate restored most of the funds to the independent offices appropriation bill. Samples:

ITEM	BUDGET REQUEST	HOUSE ACTION	SENATE ACTION
	<i>in thousands</i>		
HHFA administrator .....	\$ 6,250	\$3,606	\$5,606
PHA administration .....	\$11,420	\$7,000	\$9,000
FHA administration .....	\$ 5,631	\$4,885	\$4,885
Home Loan Bank Board ....	\$ 779	\$ 725	\$ 779
FNMA administration .....	\$ 4,140	\$3,371	\$3,647

HHFA did not escape without a rebuke, however. Annoyed at complaints that federal officials were junketing around the nation coaxing communities to incur debt by undertaking slum clearance and public housing programs, the upper chamber sternly asked HHFA administrator Foley to halt "such propaganda" by "restriction of travel or otherwise."

## KOREA GI BILL heads for passage with warranty clause

Early this month, the House adopted the billion-dollar-a-year GI Bill of Rights aimed at giving Korea veterans an even better housing deal than World War II veterans have under 1944's GI law. Quick passage by the Senate looked certain. The new bill would cover men and women in uniform between June 27, '50, when American forces entered the Korean fighting, and a date to be set later by either Congress or the President. Chief features:

**Loans**—The government, as before, would guarantee up to 60% of a 4% loan on a home, farm or business with a maximum guaranty of \$7,500.

**Discipline**—The Veterans Administration would be given power to (1) refuse to appraise for builders with bad records in dealing with veterans, (2) refuse to guarantee loans made by lenders who fail to keep adequate accounting records, have not serviced loans adequately or have otherwise "engaged in detrimental practices." (Under the present GI law, all VA can do to builders who refuse to mend their ways is to deny them advance commitments.)

**Warranty**—Anyone selling a house to a veteran would be "deemed to have expressly warranted



... that the dwelling is constructed in conformity with the plans and specifications," would be required to correct any deviation or failures brought to his attention in writing within a year.

**NAHB objections.** If the warranty clause stayed in the bill when it became law, it would thus cover veterans who bought homes with FHA loans, too. Neither HHFA, NAHB nor mortgage bankers liked the idea. Builders despaired of killing the compulsory warranty in the House, but hoped to be able to talk the Senate out of accepting it. They argued that the legislation, by inviting veterans to squawk, would encourage an outbreak of petty grievances which would swamp VA in needless paper work, deluge builders in uncalled for complaints.

To illustrate its insistence that good construction cannot be legislated, NAHB had only to point to the other end of Pennsylvania Avenue. There, Harry Truman was finding many a minor defect in the renovated White House, which cost \$5.7 billion. Samples: dumb waiters stuck; some rooms were too hot, others too cold; the new incinerator did not work.

Rep. Olin Teague (D, Tex.), whose investigating committee has been running down complaints of shoddy construction for veterans, declared VA's proposed power to exclude the slipshod fringe of builders and appraisers would prove far more effective in cleaning up the veterans' housing program than the controversial warranty clause. As things stand now, he pointed out, one San Diego builder who was indicted after Teague committee disclosures simply moved to Reno and set up shop anew.

## RENT CONTROL tied to prices, wages in Senate vote

Administration forces in the Senate wrested a watered down Defense Production Act extension from the banking committee, but it was obvious that they would have a close squeak pushing the measure through Congress before the present law expires June 30.

Opposition strategy was to weaken and relax controls rather than to eliminate them. Leaders of the Dixiecrat-Republican coalition feared the political consequences if they ditched wage and price controls only to find a new round of inflation at the height of the election campaign.

On the Senate floor, an amendment was offered by Sen. Everett Dirksen (R, Ill.) to limit extension of rent control to eight months (instead of 12 recommended by the committee). It carried 48-34. This will make rent control come up for renewal along with price and wage controls. Headed for Senate passage, the bill would also:

► Continue materials controls and power to impose credit Regulations X and W to June 30, 1953.

► Exempt professional engineers, architects and accountants from salary stabilization.

► Extend wage and price controls to March 1, '53 to give the next Congress a chance to review them as soon as it convenes.

In the House, sentiment for junking credit controls ran stronger. The House banking committee, adopting an amendment offered by veteran-loving Rep. Wright Patman (D, Tex.), voted 16-10 to kill all curbs on credit. Observers agreed the House would concur, thus leaving the future of Regulations X and W up to a Senate-House conference.

Rep. George A. Dondero (R, Mich.) readied an amendment to spell out in law the exemption claimed by home-builders from application of wage controls to their skilled worker teams. Meanwhile, the Construction Industry Stabilization Commission agreed to "restudy" its entire wage policy for homebuilding—including incentive pay and fringe benefits.

## MILITARY PAY law raises quarters allowances by 14%

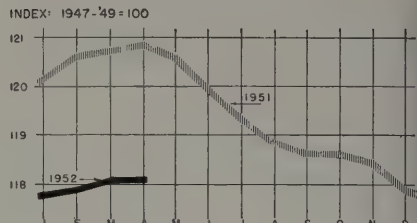
The Armed Forces pay raise act, signed into law by President Truman May 20, not only gave US military men a 4% pay increase, but also hiked their quarters allowances 14%. That meant that servicemen could afford to pay higher rents when the act becomes effective, July 1. The new allowances:

RANK	WITH DEPENDENTS	WITHOUT DEPENDENTS
Maj. Gen. ....	\$171	\$136.80
Brig. Gen. ....	171	136.80
Colonel ....	136.80	119.70
Lt. Col. ....	136.80	102.60
Major ....	119.70	94.20
Captain ....	102.60	85.50
1st Lieut. ....	94.20	77.10
2d Lieut. ....	85.50	68.40
	NOT OVER 2 DEPENDENTS	OVER 2 DEPENDENTS
Master Sgt.; Tech. Sgt., Staff Sgt., Sergeant ....	\$ 77.10	\$ 96.90
Corporal, Pfc. and Pvt.:	\$51.50 with one dependent, \$77.10 with two dependents, \$96.90 with over two dependents.	

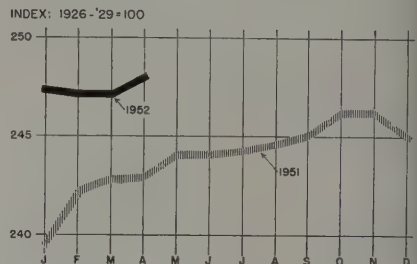
## LABOR PIRACY: Denver builder draws light penalty from WSB

Responding to a plea of guilty, the Wage Stabilization Board gave the Burns Construction Co., one of Denver's largest home-builders, the minimum penalty for labor "piracy." Burns was told it could not deduct \$4,618.84 as a business expense on income tax returns. This was the amount it had overpaid 37 bricklayers (at \$4 an hour instead of the prevailing \$3) and 19 hod carriers (at \$2.25 instead of the prevailing \$1.85) last spring. Had WSB wanted to be tough, it could have disallowed the entire payroll during the overpay period—\$25,660—as an expense and withheld material priorities and allocations.

## BUILDING, MATERIALS COSTS



Over-all materials prices remained static, though lumber and plywood prices climbed a little for the first time in months. Price increases announced for sheathing grade plywood still do not cancel out last year's big drop.



Housebuilding costs rose gently, pressured by rising labor wages and, in some communities, zoning ordinances which increased minimum plottage. Although the Boeckh index rose only from 247.3 in March to 248.1 in April, the rise may be augmented as more wage agreements are signed.

## EQUITY SKINNING rising, VA warns; industry aid sought

Gullible veterans, strapped for cash and delinquent in GI mortgage payments, are losing their homes in increasing numbers due to "equity skinning" or "milking," reported VA last month. In a typical form of this legal racket, a veteran is approached by a smooth-talking stranger who offers to meet back payments if the homeowner will just "sign on the dotted line." The duped veteran then finds he has signed a deed and can regain his property only by signing a land sales contract at a much higher price. When he cannot meet the excessive terms of the new agreement, he loses his house.

Sometimes, said VA, the veteran with mortgage payments in arrears is coaxed into signing away his equity for a nominal sum plus the privilege of buying another house in a lower cost area. The veteran agrees to give possession in 60 days and when the interval is up, he is evicted and told no listings are available in the cheaper development.

There are plenty of potential victims. VA calculates that 10% of the 3 million home loans guaranteed since the start of the program have been in default for one month or more. Bankers and builders would do well to heed VA's advice to expose such practices in their own communities.



# Fresh Breeze in NAREB: President Lund Soft-Pedals Criticism, Plugs Slum Repair

In the postwar years, the National Association of Real Estate Boards, whose 47,000 members make it the building industry's biggest single organization, has earned a reputation as the nation's most strident voice of opposition to public housing, rent control and other federal schemes which infringe on economic freedom for real estate.

It is probably a moot point whether such fighting sincerity has paid off. NAREB can point to some legislative results, such as shifting the rent control into the defense program where presumably it will be easier to end when the defense program tapers off, and last year's easing of an owner's income tax liability on profits from sale of his own house. But NAREB's bitter-end opposition to Truman Administration housing plans also earned it a stigma that makes other building industry groups wary of co-operating publicly with the realtors—even on mutual goals.

**New viewpoint.** To Joseph Wheelock Lund, the trim, youthful (46) Boston grandfather who became NAREB's president last January 23, a remedy was urgent. Says Lund: "We had to get something in the way of a more constructive emphasis—and we *are* getting it."

**The Lund formula:** play down NAREB's opposition to items like public housing, rent control, emphasize how private industry can foster urban rehabilitation without leaning on federal aid.

**The Lund method:** hammer home his ideas in meeting after meeting with realtors and business leaders across the nation.

Like any president of an industry association, Joe Lund covers a lot of territory. By the end of May, his journeys had taken him to 43 cities in 27 states. By the end of his term in office next January, he will probably speak in 75 more.

Lund tries to avoid talking just to the men of his own calling. His favorite session is lunch with about 20 community leaders where specific problems can be discussed back and forth. Recently, in Louisville, Ky., at what he regards as a particularly successful meeting of this kind, Lund sat down with the head of General Electric's new appliance plant, the head of the city's biggest department store, the publisher of the Louisville *Courier-Journal*, and several leading bankers. The reaction? So far, says Lund, it is "verbal interest—a great deal of interest. They want to know how to go about doing things. I hope by the end of the year we might be getting some concrete results."



**PRESIDENT JOE LUND** of NAREB, shown here in front of his Beacon St. home in Boston, got into the real estate business when he graduated from Harvard in 1926, is now executive vice president of R. M. Bradley & Co., Inc.

As a speaker, Lund manages to convey Yankee sincerity in a person-to-person style. In the Midwest and South, where his slight Boston accent is noticeable, Lund bridges the gap to audiences with humor. A man who introduced Lund in Chicago, noting his association with the Boston 5¢ Savings Bank, remarked that he didn't know the nickel was still valuable. Retorted Lund: the bank was named in 1840, but now was a \$200 million institution, "which shows what patience and a constructive attitude can do."

**Double-barreled task.** As Lund sees it, the problem of urban rehabilitation breaks down into two steps: 1) Renovation and re-use of individual properties by individuals and 2) a longer range, more important effort in which "businessmen may be able to take over the country's redevelop-

ment effort" from the federal government. To a Kansas City meeting, he put his sales talk for individual rehabilitation this way: "I don't think we are going to sell as many new homes in the next five years as we have the last five. A lot of realtors are going to have to go into rehabilitation. A touch of beauty here, a little imagination there will work wonders. And it can be done on a local level, without any help from Uncle Sam . . . If only two or three cities needed rehabilitation, we would figure that they were busted down and needed help. But every city has the problem. We can't just build a new house for every family in the nation. It would wreck the cities. That property is mortgaged and you can't chip away at values like that by having everyone move out in the suburbs."

Lund likes to point to the "excellent starts" at rehabilitation already made by Baltimore, Charlotte, N. C. and Philadelphia. Charlotte, he told 500 members of the Chicago real estate board recently, "is your pilot city." There, property owners and real estate operators have joined to rehabilitate 8,500 dwelling units—one fourth of the city's total—since World War II. The job has added \$4 million to the tax rolls.

In his long-range goal of getting the private building industry to lead the fight against blight, Lund casts himself in a salesman's role. He told Chicago newsmen: "My job this year is to get realtors to take the lead . . . They must get the politicians to set up special courts to enforce building law violations. They must sell the program to banks and insurance companies so adequate mortgage money will be forthcoming." Lund would like to see more cities follow the lead of the Chicago Land Clearance Commission, which, using local

Walter Cizardi



**BROOKLYN MUSEUM EXHIBIT**, set up by Pratt Institute architecture students with AIA help, was aimed at stirring up public interest in housing and industrial problems, including rehabilitation and redevelopment of slum areas. Sign at right urges residents to "learn the facts, organize community groups. . ."



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tax revenue only, buys land and sells it at a write-down to private investors for redevelopment. As he sees it: "In the long run, the redevelopment cost is paid by the increase in taxes paid on the new construction. There's no point in each city taxing itself to pay a federal redevelopment group which then sends the money back."

**Villainous motorcar.** To these two tactics for fighting urban decay, Lund adds one more: "The worker has to be shown that even if he pays 25¢ for a trolley ride, he still is getting a better buy than driving his own car." Driving home this insight will be no easy business. But Lund is freshly armed with a revealing statistic: in Boston, a team of Harvard graduate students, working under Associate Prof. William Wheaton, studied the total cost of public vs. private transportation. They found that a good public transportation system requires a capital investment of \$1,000 per rush hour commuter; construction of adequate roads and parking lots for auto transportation requires a capital investment of \$4,000 per commuter. The trouble, as Lund declared last month in Kansas City, is that public transportation "has been a political football up to now." Politicians will not let transit systems raise fares enough to stay solvent, even though the resulting chaos and traffic congestion costs the public far more money. For instance, says Lund, "Detroit is having to tear down the city (for parking lots) because it has failed to solve its mass transportation problem."

**A long project.** Joe Lund knows that enticing private industry into urban redevelopment will be a long, hard job. For one thing, only 24 states have permissive redevelopment acts giving cities power of eminent domain. Only Baltimore and Charlotte so far have had the horse sense to establish a real estate court—"an absolute must" in slum repair because other courts usually mete out token \$10 or \$20 fines in slum enforcement cases. A slum landlord would far rather pay the fine than spend \$500 or \$600 to repair an unsafe or unsanitary building. Moreover, to win the fight against blight, says Lund, "you have to have a sparkplug in every city. About all we can do is set up a clearing house of information."

**Rising support.** Across the country, there was a lot of evidence that cities at last were waking up to the need for action.

► In Washington, Edward Carr, who is president of the Capital's Real Estate Board, heads a group of homebuilders who formed a corporation for the sole purpose of rehabilitating neglected residences.

► Pasadena, Calif., a prosperous city of 39,000 residences, congratulated itself on razing 96 makeshift living quarters in a six-month drive to en-

force existing building, health and fire codes. Not a cent of federal money was involved.

► Corpus Christi, Tex., counted 100 complete demolitions and 1,000 law enforcement actions in a year-old (and continuing) rehabilitation drive backed by private industry.

► Los Angeles, Miami and Memphis, after studying the success of Baltimore's pioneer block-by-block improvement program, planned to launch similar enforcement drives of their own.

No less than NAREB's President Lund, NAHB's President Alan Brockbank was preaching the gospel of urban repair in his cross-country junketing. In fact, NAHB was moving ahead of the realtors in bally-

hooning the war on erosion through neglect. While NAREB's directors, at their Chicago meeting last month, took no immediate action on a Lund plea to set up a slum renovation staff, publicity-wise NAHB called a September conference in Seattle to drum up more support for fighting blight.

No matter who did what, private enterprisers could be grateful that the building industry had begun to act concertedly against one of its toughest problems. Too long, the war on slums, by default, had been waged chiefly by public officialdom.

## PEOPLE: Whatley, Clarke nominated by Mortgage Bankers' Assn.; Jim Downs gets Chicago post; FLLW raps New York hotels

The Mortgage Bankers Assn. of America's nominating committee, meeting in Florida, lined up the official nominees for MBA's

Cal—Pictures



WHATLEY

1952-'53 year. Nomination is tantamount to election at the MBA national convention in Chicago in September. The new officers: **Brown L. Whatley**, whose Stockton, Whatley, Davin & Co. of Jacksonville, Fla. is among the nation's top three in mortgage loan volume, president. He will succeed **Aubrey M. Costa**, president of Dallas' Southern Trust & Mortgage Co.; **W. A. (Will) Clarke**, head of Philadelphia's W. A. Clark Mortgage Co., former real estate consultant to the Federal Reserve Board and currently his industry's spokesman before Congressional committees concerned with building, vice president.



CLARKE

Peppery **Frank Lloyd Wright** chose New York hotels as his target on a recent broadcast with radio breakfast hostess Jinx Falkenberg McCrary. Asked Jinx: "Why do you pick an old-fashioned hotel like the Plaza to stay at in New York?" Replied FLLW: "It was built by Henry Hardenberg, a master of German Renaissance architecture imported here by the Four Hundred to do the job. He made it an exceedingly thrilling and fine thing for its time and, as a modern architect, I believe that what was good in its time should be preserved. . . . All those other hotels (Savoy-Plaza, Pierre, Sherry-Netherland, etc.) are imitations of the old Plaza. They got a lot of little boys who're doing the French racket, which we think is the aesthetic

thing to do, to come in and destroy most of [the Plaza tradition]."

The National Lumber Manufacturers Assn. picked a new executive vice president: **Leo V. Bodine**, 42, for the past two years vice president of St. Paul's Weyerhaeuser Sales Co. Bodine began his lumbering in 1929 with the Clearwater Lumber Co., of Lewiston, Idaho, which later became part of Potlatch Forests, Inc. For a time, NLMA directors had considered tapping another industry "to get a man all factions could agree on" to succeed the late Richard A. Congan Jr. Bodine's new post will bring him a reported \$35,000 a year.



BODINE

To dovetail and expedite the housing programs of all Chicago agencies, Mayor Martin H. Kennelly appointed realtor **James C. Downs Jr.** as permanent, nonsalaried Housing Coordinator. Downs will review housing policy set by the Chicago Plan Commission, the Chicago Housing Authority, the Chicago Land Clearance Commission and the Chicago Dwellings Association. Most important work, he expects, will involve public housing. Downs, for 25 years an author, lecturer, editor and real estate property manager, is president of Real Estate Research Corp. and a property management firm, Downs, Mohl & Co.



DOWNS

The case of **Ludwig Mies Van der Rohe** vs. Dr. Edith B. Farnsworth began before a Yorkville, Ill. master in chancery last month. The renowned head of Illinois Tech's school of architecture is suing for

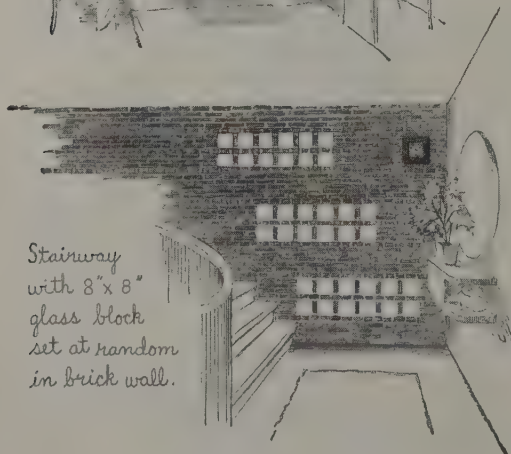




Panel of random clear glass block adds to the colonial charm of the entranceway.

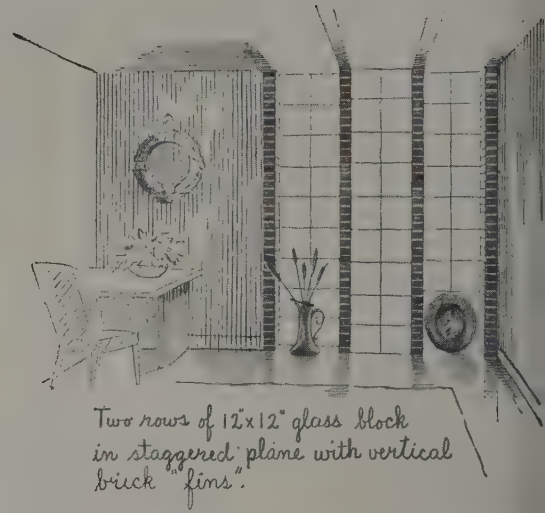


8"x8" glass block separated by brick.



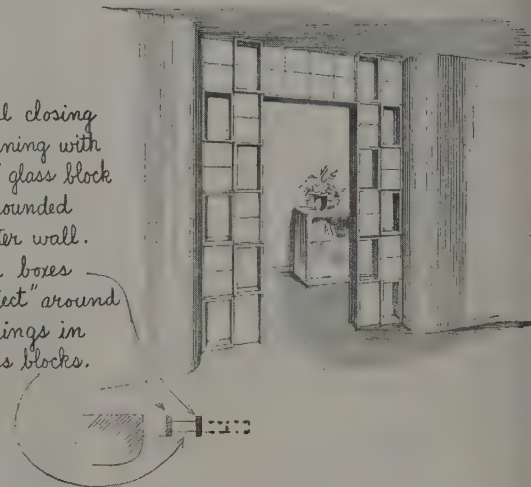
Stairway with 8"x8" glass block set at random in brick wall.

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mechanics lien foreclosure in the hopes of recovering \$28,000 in out-of-pocket money, architect fees and supervisory services which he lavished on his client's famous Plano, Ill. house (Oct. issue '51). Dr. Farnsworth, in turn, is suing Mies for \$33,872—the amount by which she claims Mies exceeded his original \$40,000 estimate. The master's opinion is not expected before the end of summer.

"In tomorrow's Britain," said **Andrew G. Henderson**, president of the Royal Institute of British Architects, "the cities will be growing up, rather than out. An Eng-



**BRITISH VISITORS** Andrew G. Henderson (left) and Royal Institute Secretary C. D. Spragg (right) chat with AIA President Glenn Stanton at Royal Architectural Institute of Canada Assembly in Vancouver.

lishman's home will likely be a walk-up apartment." The British architect, who stopped off at the AIA's Octagon in Washington to present a candelabra, also had words on redevelopment: "Now that the emergency temporary housing program of the postwar period has been concluded, Britain can afford the luxury of tearing down and redeveloping the Victorian Belt—the obsolete buildings encircling the center of most British commercial communities." As for incentive, Britain's Henderson reported the government, which controls all building, awards medals to the cities with the best designed housing projects. "The architect who can make a limited quantity of materials go the farthest gets the palm—and the most business," said Henderson.

Indiana had a new Federal Housing Authority director this month after a 4½-month hiatus. He is **F. Shirley Wilcox**, 57, onetime (1945-48) Indiana collector of internal revenue and, until defeated for re-election in 1950, his state's treasurer. He succeeds the late R. Earl Peters who was dismissed Jan. 11 for violating FHA regulations by insuring his own investment in a Ft. Wayne apartment project. Hoosiers who recall Wilcox's succession of business ventures (automobile dealer, radio and

theater interests—but none in building) had a tart comment: "Strictly a political appointment."

**Stocky Robert H. Morris**, a 23 year veteran of *American Builder* magazine, resigned as publisher after five years of growing competition had cut heavily into profits. Newly appointed publishing director: **Conrad J. Wageman**. Morris and C. W. Smith of Southwest Research Institute began sounding out homebuilders on forming a syndicate to buy building materials for its members at quantity prices.

**DIED:** **Harry T. Kendall**, 69, board chairman of the Weyerhaeuser Sales Co. whose leadership in the industry had earned him the title "Mr. Lumber," May 2 while attending a conference of the US and Canadian Chambers of Commerce at White Sulphur Springs, W. Va.; **Edward J. Kelly**, 55, Chicago FHA director, May 6 in Chicago; **Francis G. McKelvy**, 68, board chairman of the Alpha Portland Cement Co. and one-time chairman of the Portland Cement Assn., May 7 in Easton, Pa.; **Edward H. Berger**, 58, asphalt consultant to Johns-Manville and a pioneer developer of asphalt roofing, May 12 in Roseland, N.J.; **Frances B. Johnston**, 88, pioneer woman photographer whose dexterity with architectural pictures won her a contract with the Library of Congress to photographically document historic southern buildings, May 18 in New Orleans; **W. M. Ritter**, 88,

founder of his own lumber firm in Columbus, Ohio and a pioneer developer of the Appalachian hardwood industry, May 21 in Washington, D.C.

The Fine Arts Medal—the American Institute of Architecture's highest award to creators outside its immediate field—will

AIA photo



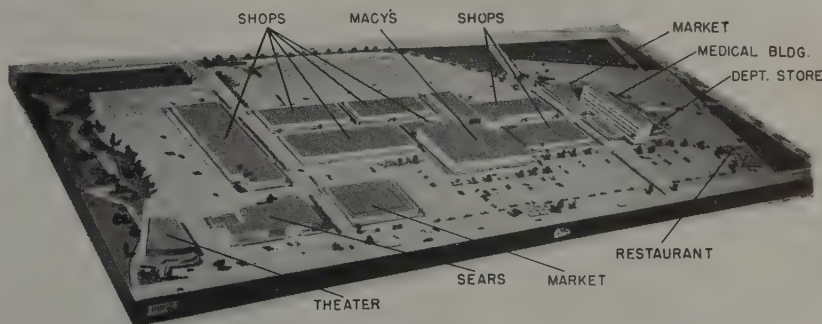
**FREDERICKS**

be given to Detroit sculptor **Marshall Fredericks** during the AIA's national convention in New York this month. Fredericks, 44, has been a heavy booster of collaboration among the arts. He did embellishment work for the University of Michigan War Memorial and the Detroit Veterans Memorial Bldg. Currently, Fredericks is working on projects at the Cleveland War Memorial, Ohio State University and Detroit's Fort Street Union Depot.

After four years as president of GE's Hotpoint, Inc., **James J. Nance**, 51, resigned to assume the presidency of the Packard Motor Company. An aggressive salesman and keen market analyst, Nance sent Hotpoint sales zooming from \$20 to \$200 million in four years. Ascending to Hotpoint's No. 1 job was **John C. Sharp**, 51 (elected president, general manager and a director), former vice president and chief engineer, with Hotpoint for 23 years.



Gabriel Moulin



## WESTERN SHOPPING CENTER to get Macy's biggest suburban store

Macy's announced it was about to build a \$6 million store, its biggest suburban branch yet, in Hillsdale on the San Francisco Peninsula. San Francisco architect John Bolles will design 5 acres of floor-space on three levels. Macy's will form part of builder David D. Bohannon's new 42-acre shopping center (model above) under the design of Welton Becket & Associates. The center will have 76 shops, including a five-story medico-dental building, an underground concourse for trucks and parking space for 12,000 cars.





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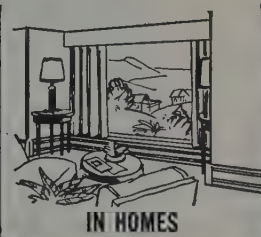
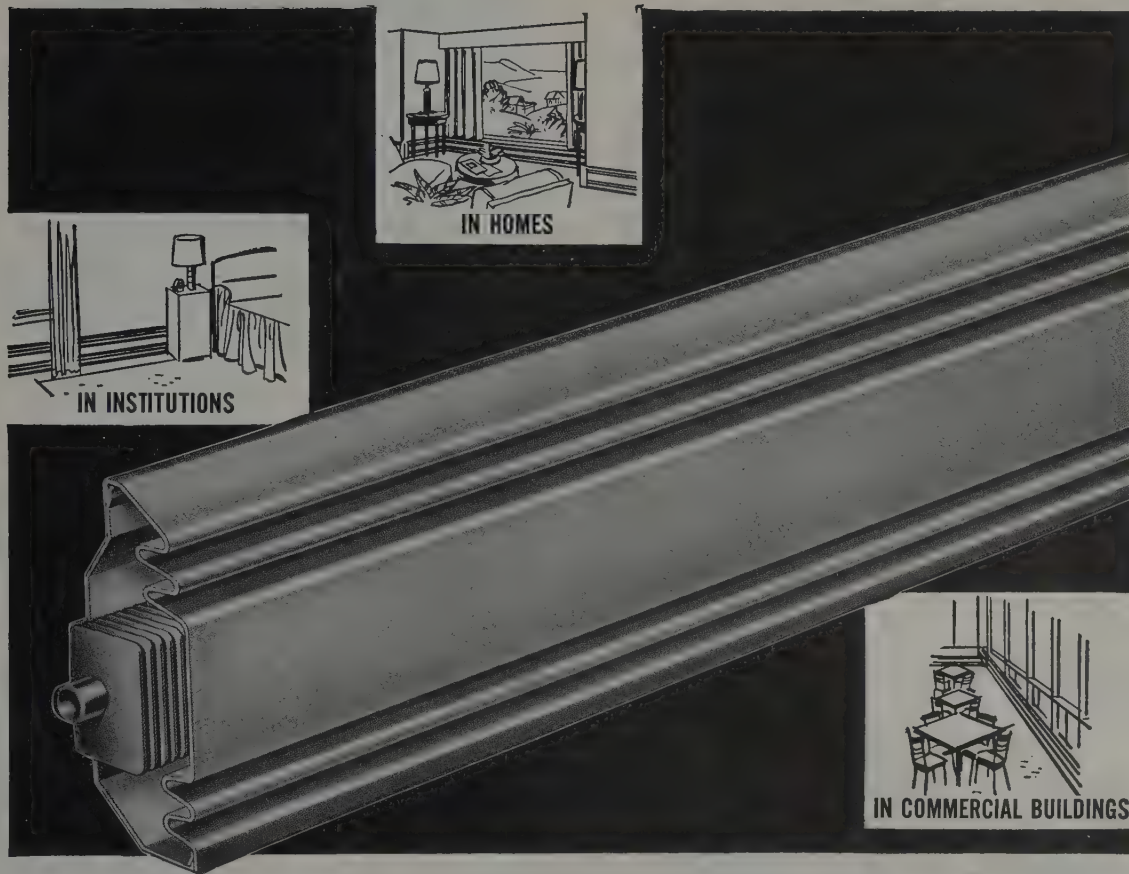
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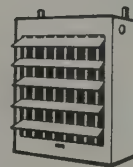
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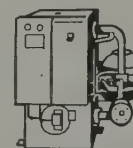
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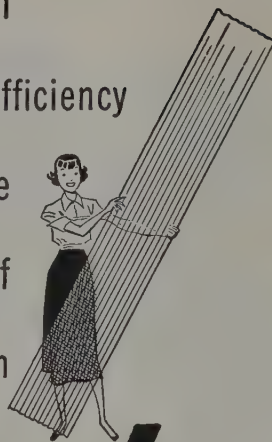
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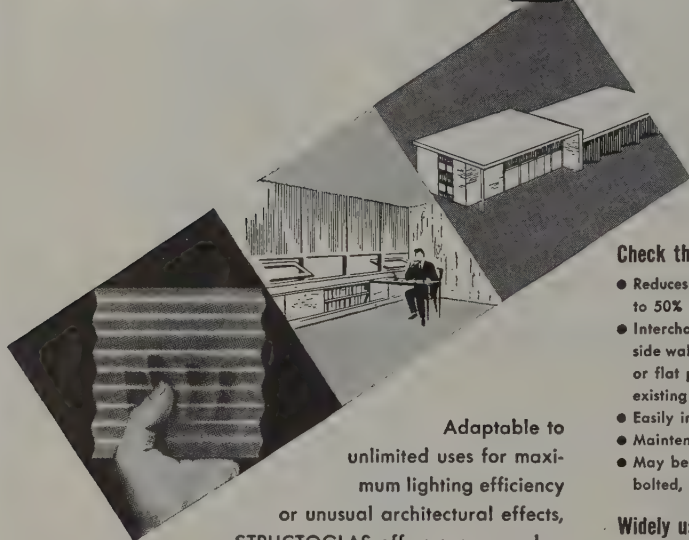


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HH-6

## LETTERS

Sirs:

HOUSE & HOME for March '52 sets a unique publishing pattern. The writing sounds as if it were by architects who are literate rather than by writers with an interest in architectural design but with no contact with its technical processes.

The magazine shows taste, restraint, a sense of humor. Finally, it does more than a reporting job, apparently being willing to risk alienating large batches of readers by trying gently but persistently to influence them in their architectural point of view.

MAXIM DUPLEX  
Washington, D. C.

Sirs:

Throughout the entire field of homebuilding and finance we hear praise of HOUSE & HOME and its handling of material valuable to our industry in general. Congratulations particularly on your handling of the "News . . . News . . . News." Prefabricators generally have divergent opinions in the matter of who makes the better dealer: a businessman with no building experience, or a building man with no business experience. We solved this problem by searching both fields and providing all of our dealers with an annual gift subscription to HOUSE & HOME. By making the News section required reading, a dealer in either category soon goes a long way towards filling either deficiency.

WILLIAM B. F. HALL  
General Industries, Inc.  
Fort Wayne, Ind.

Sirs:

I was most interested in the accounting system (H&H, Feb. '52). This seems to me, as a small builder, a very accurate method of book-keeping. But most of all a very exact method of finding a cost breakdown complete to the last detail. . . .

WILLIAM A. CAMPBELL  
Tacoma, Wash.

Sirs:

This month I received two copies of your new HOUSE & HOME edition. It is a grand magazine but much as I enjoy it, I doubt if I require two copies. . . . Yours with applause for a magnificent publishing job.

ROY M. SCHOENBROD  
Architects & Engineers  
Chicago, Ill.

Sirs:

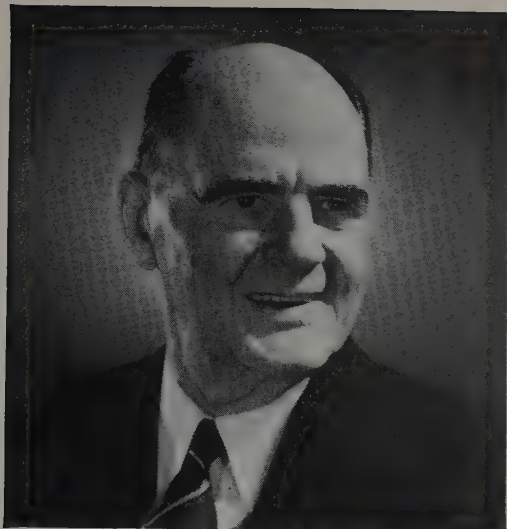
To one interested in financing homebuilding, improving salability and resalability, your magazine fulfills a long felt want. I hope that you can give it a wide circulation in the small builder field.

FRANK S. JAMES  
Leonla, N. J.

P. S. Why not give the magazine a name of its own instead of making it a small letter edition of another magazine?

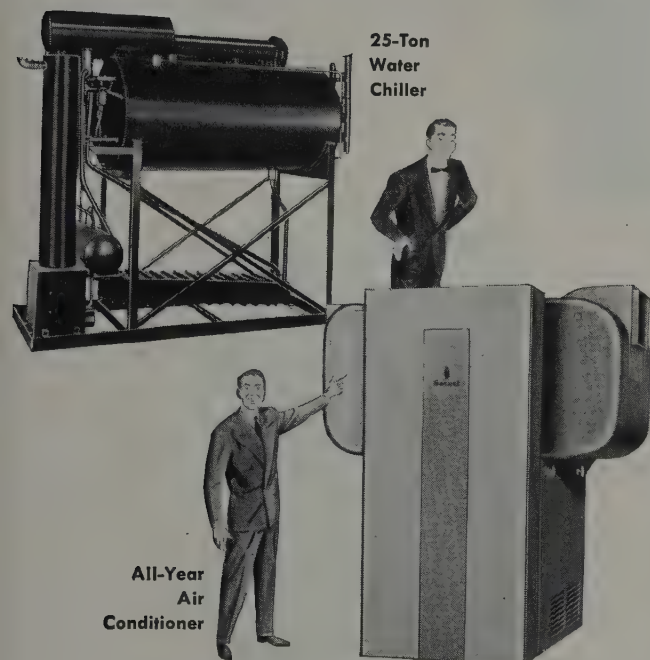
(Continued on page 68)





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No other air conditioning installation under the sun backs up your recommendation with all these sensational features. Here is the world-famous Servel refrigerating unit that has no compressor—no moving parts, no vibration, no noise. Factory-guaranteed for five full years! It sets a brand new low in maintenance economy, requires no special foundations, can be located anywhere that's most convenient. Uses *water* as a refrigerant . . . operates under a vacuum with no pressure, thus conforming to all building codes. Lighter floor loading and lighter per ton of capacity. Uses *heat* to create *cold* for a complete choice of energy source . . . operates on gas, oil, LP gas, waste heat or steam at any pressure. Specify Servel with confidence—it's the smoothest-operating, most trouble-free unit on the market—custom engineered to do every job best.



SPECIFY SERVEL . . . the air conditioning that offers low operating cost, guaranteed dependability, in residential, commercial or industrial installations.



## Servel AIR CONDITIONING

Made by the makers of the famous Servel Refrigerator  
SERVEL, INC. • Evansville 20, Indiana

**Get the facts and you'll choose Servel!  
Write for complete information today.**

Servel, Inc., Dept. MBL-6, Evansville 20, Indiana

Gentlemen:

I'm interested in the dependability and low operating cost of Servel Air Conditioning. Send me full details on ☐ Industrial ☐ Commercial Units.

Name \_\_\_\_\_

Firm \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



# Why a half BATH?

**WHEN WEISWAY MAKES A  
FULL BATH EASILY POSSIBLE**



**Weisway**  
CABINET SHOWERS

● Space-saving corner entrance Weisways combine with other fixtures to provide complete bathrooms in small floor area.

Wherever you plan separate shower baths Weisway is your safe, dependable answer. Walls are Bonderized, galvanized heavy gauge steel with two separately baked on coats of enamel — corners sealed in compression tight joints. Vitreous porcelain enamel receptor, acoustically insulated, has Foot-Grip, No-Slip floor — safe, positively non-absorbent, easy to keep clean and sanitary. Weisway quality insures client satisfaction, protects your reputation. Write for catalog with complete specification data.

**HENRY WEIS MANUFACTURING CO., INC.**  
642 WEISWAY BUILDING, ELKHART, INDIANA

## LETTERS

### ALUMINUM vs. COPPER WIRING SYSTEMS

Sirs:

In the March '52 HOUSE & HOME you say that in electric wiring systems "1 lb. of aluminum will actually do the work of about 3 lbs. of copper."

However, aluminum has a conductivity about 63% of copper's, and the 1951 National Electrical Code in Note 1, p. 353, and par. 3106, p. 96, allows 84% of the current carrying capacity of the same size copper conductors. Larger sized aluminum conductors must be used to carry the same number of amperes as copper.

The difference in current carrying capacity of copper and aluminum is further based on the insulation provided. For equivalent insulation, such as Type R, and approximately equal current carrying capacity, 1 lb. of aluminum will actually do the work of approximately 2 lbs. of copper.

This or a similar analysis undoubtedly was used in determining the one-to-two ratio provided in NPA's Order M-100. This is also the proper ratio for quoting to builders and others in the building industry who are not acquainted with the technical aspects of electrical wiring systems going into their structures. Otherwise, homebuilders will continue trying to beat down the already pitifully inadequate allowance for interior wiring in the preponderant majority of operative builder projects.

Y. L. RIPLEY  
West Penn Power Co.  
Pittsburgh 30, Pa.

### HOMEOWNER'S SERVICE POLICY

Sirs:

Your article on the Homeowner's Service Policy (H&H, Apr. '52, *News*) developed by the NAHB seems to me to convey the impression that the movement within NAHB for adoption of such a policy grows out of the present Congressional investigations.

This is not the fact. For several years NAHB has been considering the problem of providing suitable written assurance to customers. In 1950, I drew a recommended form of Home Builder's Warranty which was approved by the Board of Directors in January '51. It is used by a substantial number of builders. However, a warranty is a highly complicated type of legal contract. Its exact effect is governed by applicable state law and, in many cases, by local custom and preference. Consequently, it requires insertion of numerous qualifying clauses and careful modification for each individual builder and is, therefore, not well suited for widespread national use.

In approving the Homeowner's Service Policy (in January '52), the NAHB Board of Directors simply took the next logical step in the development of procedure which could be used nationally.

HERBERT S. COLTON, *General Counsel*  
National Association of Home Builders  
Washington 6, D. C.

(Continued on page 70)



**Increase selling and rental values**



**with heat by**

**KEWANEE**



Kewanee Cottage Boiler provides the best in automatic hot water heating for small homes . . . yet is priced to meet modest budgets.

From his many years experience, as one of Chicago's leading heating men, contractor Matt Grage knows that the health and comfort of every home depend on a never failing supply of heat. He knows too that a good heating system increases the rental and selling value of any home and highly recommends Kewanee boilers.

Contractor Grage has "teamed" Kewanee Cottage Boilers with Radiant Baseboards in many homes in Chicago's fast growing Southwest side . . . thus providing even small homes with all the advantages of modern radiant heat. Pictured are three of many homes in which Mr. Grage has installed Kewanees the past year.

From cottage small to skyscraper tall there is a Kewanee Boiler for every size building . . . and for every kind of fuel and every type of heating system.

Backed by over 80 years of boiler building experience the Kewanees for small homes are made of the same staunch steel plate and in the same faultless manner as their bigger brothers which have for many years been preferred for heating America's largest buildings.

**KEWANEE BOILER CORPORATION**

Division of AMERICAN RADIATOR & Standard Sanitary Corporation

**KEWANEE, ILLINOIS**



*Serving home and industry*

AMERICAN-STANDARD • AMERICAN BLOWER • ACME CABINETS • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILERS • ROSS HEATER • TOMAWANDA IRON



# Highlight that SELLS the house!

**Add a real PLUS to any plan with an R & M "Package" ATTIC FAN!**

**NO "EXTRAS."** Everything needed arrives on job in a package. Including automatic ceiling shutter, from \$154.93\*, retail.

**No other single feature** does so much to sell a house. Nothing you can offer in a home gives more lasting pleasure. Nothing makes such staunch boosters of clients as cool summer comfort.

**Easy installation.** R & M "Package" Attic Fans with certified air deliveries of 4750 and 6800 CFM cut installation costs to the bone. Fan simply sets over roughly framed opening, no finishing needed. Rubber cushion seals fan frame to ceiling opening. Ceiling trim is part of complete automatic shutter assembly. Also available in easy-to-install 7700 and 9700 CFM sizes.

**Ideal for low attics** and all standard hallways. Perfect for "moderns" with limited attic clearance. Quiet, too. Moving parts are rubber-mounted. Factory-lubricated, sealed ball bearings on fan and motor. Fan guaranteed five years; motor and shutter, one year.

**Yours for the asking** is a reliable 28-page guide that contains all the "hows" and "whys" of comfort cooling. This book will be a real help every time you specify cooling and ventilating equipment. Send for your copy now.



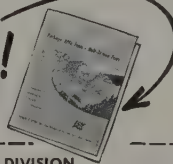
Consult Sweet's Architectural File for complete Robbins & Myers cooling and ventilating data.

## ROBBINS & MYERS

"Package" attic fans

Atlanta, Boston, Chicago, Houston, Kansas City, Los Angeles, Minneapolis, New Orleans, New York, Orlando, Philadelphia, San Francisco, Springfield, Ohio

IT'S FREE!



### A FEW ITEMS FROM THE TABLE OF CONTENTS!

- Comfort cooling by attic ventilation.
- Round-the-clock comfort with air cooling.
- How to determine fan size.
- Installation for any type of home.
- Commercial ventilating and cooling details.
- Industrial ventilation—principles and methods.

\*Price subject to change without notice

ROBBINS & MYERS, INC., FAN DIVISION  
387 So. Front St., Memphis 2, Tennessee MB-62  
Please send me your booklet—"Robbins & Myers Package Attic Fans, Belt-Driven Fans." A.I.A. File No. 30-D-1.

Name.....  
Address.....  
City.....Zone.....State.....

## LETTERS

### LITERATURE WANTED

Sirs:

We are a new office and in order to build up a reference file, we would appreciate it greatly if you could include a request for manufacturers' literature in your next issue.

A. CALVIN HOILAND, *Architect*  
Great Falls, Mont.

### THE BANANA SPLIT

Sirs:

In "The Banana Split" (H&H, Apr. '52), I was especially impressed by the three builder houses as seeming to have been designed by a person "determined to use every surface finish known to Sweet's catalogue."

Therefore, I was more than a little shocked to read further on in "Fully Air Conditioned Houses for \$12,500" a serious description of a similar row of builder houses which incorporate "board-and-batten, plywood and batten, painted redwood horizontal or vertical siding, or shingles" in their six different floor plans "with three facades for each plan."

It seems to me that in a magazine dedicated to the furthering of the best principles of architectural design, such examples of what you, yourselves, call horrible architecture should not be condoned, even if they do have central air conditioning systems.

MORTON L. LEVY, JR.  
The Rice Institute  
Houston, Tex.

Our comments on Banana Split facades may have suggested that we believe that *all* variety in house facades is *ipso facto* deplorable. This, of course, is not so—and we are going to clarify this point in our next installment. The Dallas houses referred to by reader Levy are a good case in point: they use different materials on the same facade, *but they use the materials in horizontal stripes*. The result is houses that look longer and sleeker than they really are. We were talking about facades that are cut up into *vertical slices*—which make the houses look shorter, dumper and more chaotic than they really are. It's all a question of how you slice the banana.—Ed.

Sirs:

"The Banana Split" shows good examples of small house design and contrasts these with the typical builder's house. Several pages later you illustrate some builders' houses with mention only of those responsible for the furnishing. Not only did you miss the chance to tie well designed houses with the architects responsible, but you also failed to point out, in the house for which this office was responsible and possibly in other cases, the role of the architect in providing the impetus for good furnishing of the model and in collaborating with the decorator.

HUSON JACKSON, *Architect*  
New York 14, N. Y.

Our apologies to architect Jackson.—Ed.

(Continued on page 72)





New Silver Spring, Md. residence roofed with "Century" No. 5 Spanish Red. Asbestos Shingles. **APPLICATOR:** L. A. Lee and **ARCHITECT:** Louis R. Moss, both of Washington, D. C.

*Here's a roof that helps you  
sell the house—*

Random width, thatched butts of "Century" No. 5 Shingles give appearance of American method, individual shingles. Available in Spanish Red, Surf Green, White and Black.

## "CENTURY" ASBESTOS-CEMENT ROOFING SHINGLES

**Looks good  
for life...**

You have the strongest kind of sales appeal when you use "Century" Roofing Shingles on a house—for here is a roof that is smart and rich-looking and *will stay that way for life!*

**A variety of  
beautiful colors...**

The color is built right into these asbestos-cement shingles—they can't fade. So with several handsome colors to choose from you can achieve any effect you desire.

**Bans fire,  
rot, termites...**

And it's a roof that can't burn, soak, or rot, and will never feed termites, or need painting.

**Moderate in  
cost, goes on  
fast...**

You'll find "Century" Shingles are a *profitable* roof for you to put on—large units permit fast application. Ask your K&M Dealer about "Century" Asbestos-Cement Shingles. Or write us direct... we'll rush a reply.



**KEASBEY & MATTISON**  
COMPANY • AMBLER • PENNSYLVANIA  
*America's first maker of Asbestos-Cement Shingles*

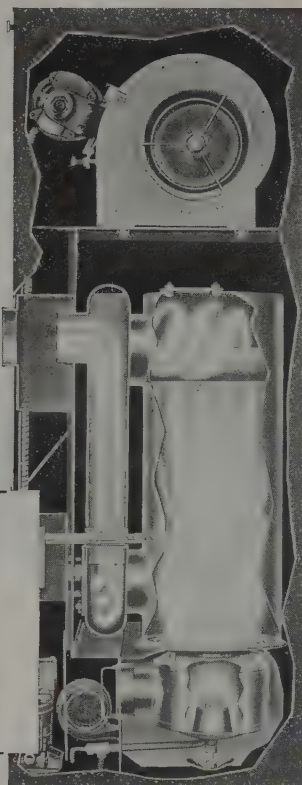


# here is the "BUILDER-DESIGNED" COUNTERFLOW FURNACE

by

## Perfection

SUPERFEX



We figure it's better to be *right* than first with a new product. So *before* we designed the new Perfection Counterflow furnace we asked builders, heating contractors and engineers what they wanted and didn't want in a counterflow furnace.

*Result:* We designed to eliminate the "bugs", the installation and service problems, the things home buyers complained about . . . and we improved on the good features. And while the new Perfection Counterflow is priced competitively, you get the same honest quality and workmanship that has made Perfection a trusted name in home heating for 64 years.

### ALL FURNACES ARE NOT ALIKE!

#### Why take less than Perfection?

- 1. FASTEST TO INSTALL**—only three connections to make.
- 2. EASIEST TO SERVICE**—all controls, blower, motor and cleanout ports are accessible from the front.
- 3. FACTORY WIRED** and assembled.
- 4. BURNS** either oil or gas.
- 5. CONVERTS** from oil to gas in 20 min.
- 6. CLEARANCE**—1" to combustible walls (two sides and rear).
- 7. TWO** large, sturdy access doors.
- 8. RIGID** box frame.
- 9.** 22" wide; 25" deep; 68" high.

For complete specifications and information write  
Perfection Stove Company, 7355-B Platt Avenue, Cleveland 4, Ohio

## LETTERS

Sirs:

Thank you for this excellent analysis.  
Sorry there wasn't an example of Measles.  
Their number is legion.

N. L. Wood  
Bethesda, Md.

Sirs:

So "Landia" is your idea of plan and construction—don't think much of your knowledge of building or architecture.

FRANCIS M. SMITH  
Dorothy Vernon Homes  
Philadelphia, Pa.

Sirs:

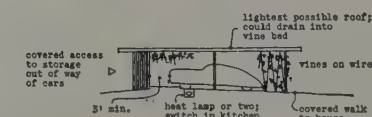
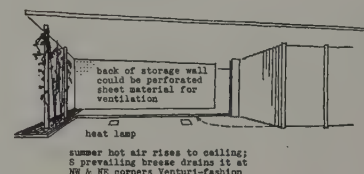
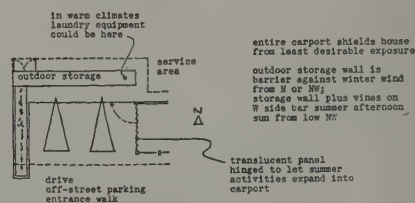
"The Banana Split" is an excellent beginning in a direction wherein lies the secret of almost all architectural progress in the US.

"The visual character of a building is one of its functions and cannot be separated into a category of its own and considered as being opposed to function." I note that FHA uses the words "architectural attractiveness" or "visual appeal of property." These terms do not indicate a great antagonism to my own definition and I can only conclude that no appraiser has ever understood them.

I hope you will not let the architect off too lightly in your series.

FRANCIS R. WALTON, *Architect*  
Daytona Beach, Fla.

### HEAT LAMPS AND VINES

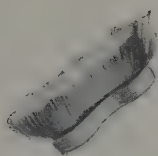


Sirs:

Here's a car storage design for you, as requested (H&H, Mar. '52). Wall of vines is in this opinion simplest, quickest, cheapest solution for necessary jobs. Why build a wall when it will obligingly grow itself? As bonuses you can have color and fragrance, if you choose the right vines. Naturally, one would use nonmaintenance materials near vines. The heat lamp, as Nelson and Wright

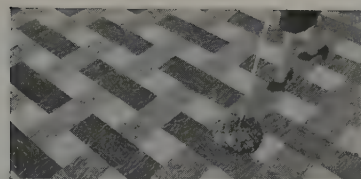
(Continued on page 74)





think about **mops**  
and **moppets**

to build yourself a better rep!



*The family that moves into your next house  
will tell their friends what they like  
and don't like in that house.*

*If you install Flor-Ever, the vinyl plastic  
floor covering, you will give them  
many good things to say . . . . .*

**FLOR-EVER CUTS CLEANING CARE**

This vinyl plastic floor covering is non-porous. Dirt and dulling film can't soak or grip into it—and therefore it is wiped clean faster and easier.

**FLOR-EVER'S SHINE LASTS LONGER**

Flor-Ever never needs waxing for protection, and because dulling film is wiped off so easily by occasional buffing or mopping, the plastic-bright glow lasts longer.

**FLOR-EVER IS AMAZINGLY STAIN-RESISTANT**

No grease or oil used in a kitchen will stain or harm Flor-Ever. This floor covering cannot be damaged by harsh soaps containing caustic lye or alkali, nor even by household chlorides or bleaches.

**FLOR-EVER WILL WEAR LONGER**

Flor-Ever, compounded of pure vinyl clear through to its Permo-Seal back, is guaranteed to outwear old-type composition floor coverings 150% as thick.

**FLOR-EVER'S COLORS CAN'T RUB OFF**

Flor-Ever's vinyl-bright colors are not on the surface. They go clear through the entire long-wearing material.

**FLOR-EVER OFFERS MORE DESIGN—by the TILE and YARD!**

Flor-Ever's 17 unique colors can be combined with versatility never before known because all colors are available in:

Seven widths by the Yard—

Standard—6 foot (72")

For counter tops and special effects:

#2"—36"—30"—24"

Borders—9" Feature Strips—1"

Two sizes by the Tile—

9" x 9" 6" x 6"



**Flor-Ever**<sup>®</sup>  
vinyl plastic  
FLOOR COVERING

**DELAWARE FLOOR PRODUCTS** division of Congoleum-Nairn Inc. **WILMINGTON, DEL.**



# get FAST, RESPONSIVE HOT WATER HEAT for

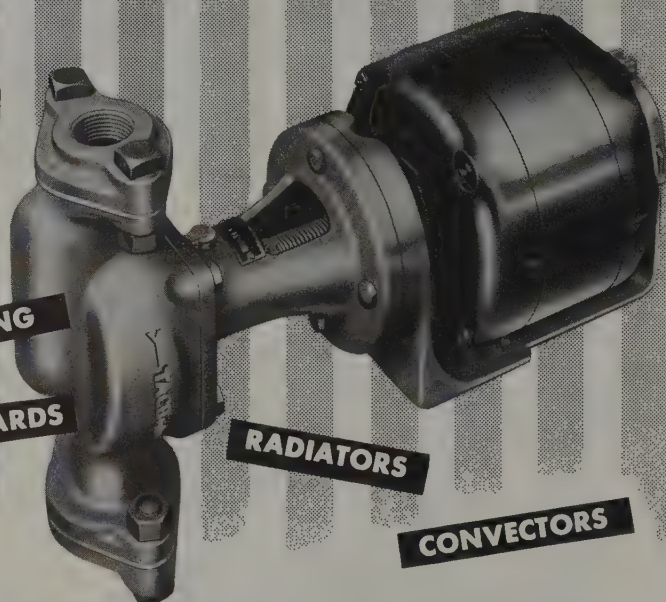


**PANEL HEATING**

**BASEBOARDS**

**RADIATORS**

**CONVECTORS**



## with this popular TACO CIRCULATOR

**EVEN LOW BUDGET HOMES CAN NOW HAVE THESE LUXURY ADVANTAGES**

### RADIANT WARMTH • DRAFTLESS WARMTH • CONTROLLED WARMTH



#### MORE HOT WATER FOR KITCHEN, BATH AND LAUNDRY

Yes, forced hot water heat with a TACO circulator gives all this *plus* economical warmth. No need for a separately fired water heater. TACO TANKLESS, hooked up to a heating boiler, supplies year 'round low cost hot water.



The TACO circulator delivers heat where it will give the greatest comfort . . . whether you use radiant panels, convectors, radiators or baseboards.



**ARCHITECTS—ENGINEERS  
WRITE FOR . . . SIMPLIFIED  
SELECTION CHART FOR SIZ-  
ING TACO WATER HEATERS  
UNDER ANY CONDITIONS.**

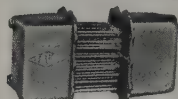
### Three other famous TACO PRODUCTS for houses

#### TACO-VENT



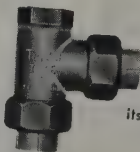
eliminates air  
from hot water  
radiation  
automatically

#### TANKLESS TACO



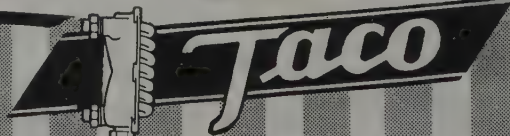
gives an abundant sup-  
ply of hot water instantly.  
No need for storage tank.

#### TACO TEMPERING VALVE



thermostatically  
mixes hot  
water with  
cold so there's  
no danger of  
its being too hot.

**Better Heating-  
Better with Taco**



TACO HEATERS, INCORPORATED • 137 SOUTH STREET • PROVIDENCE 3, R. I.

## LETTERS

have pointed out, is practically an undiscovered gem. It can save a lot of garage.

BOB WOOD, Designer  
Red Bank, N. J.

### IN PRAISE OF FHA

Sirs:

A deep bow to H&H for all its efforts to hasten building code reform and a broader acceptance of modern design by FHA. However, I believe in giving credit when credit is due. Undoubtedly one of the reasons the San Francisco Bay Area leads the nation in the intelligent use of modern home design is due to the enlightened attitude of the local FHA Architectural and Underwriting Departments.

We in this area, who have enjoyed success in the use of modern design, owe much to the understanding help of Ben Byrnes, chief architect of our local FHA. His sound judgment in matters of home design and construction has earned him the highest respect of the homebuilding fraternity in this area. District Director Richard W. Briggs and Chief Underwriter J. Bryon Barton balance out the trio of able and conscientious officials who have kept the San Francisco office consistently first among the nation's FHA offices.

EARL W. SMITH  
Earl W. Smith Organization  
El Cerrito, Calif.

HOUSE & HOME is on record that FHA is the best thing that ever happened to the homebuilding industry and the home-buying public and we are surprised that anyone should misunderstand our friendly attitude towards FHA. We do feel, however, that by this time FHA's value is so clearly recognized that there is no reason why its occasional shortcomings should be hushed up.—Ed.

### FURNISHED MODEL PAYS OFF



An Elmira decorator supplied curtains for the model house, using each window to display two different fabrics, even in the kitchen.

Sirs:

Concerning furnishing a model house (H&H, Apr. '52), this is how we opened this model home.

We started off with four full pages of advertising in the daily evening paper, and then ran advertisements every other day for

(Continued on page 76)



# Now a window installed in minutes ... and already trimmed!

The new Fenestra\* Ready-Trimmed Steel Window Unit is *sash, frame, hardware, inside trim, outside trim* . . . all in one modern unit that is easy to handle, amazingly simple to install.

**Goes in Simplest Rough Opening**—Sheathing is run over studs and cripples, nailed and cut flush around opening. No need to recess for stops, etc. Same rough opening preparation for frame, brick veneer or stucco.

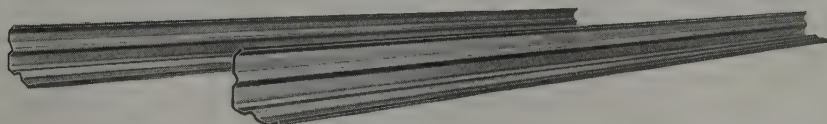
**Quickest, Easiest Installation**—Unit is simply plumbed in opening and nailed to sheathing through holes in flashing of trim—no grounds or special blocking required. No finishing or refitting. No extra trim or stops needed. Plaster or dry wall butts against the metal trim inside. Shingles, siding, stucco or brick butt against it outside.

**Helps Sell Houses**—Fenestra Ready-Trimmed Unit provides triple weather tightness—of sash in frame, of frame in trim, of trim in wall-opening. The windows are graceful and beautiful. They always open easily. They are washed, screened, and storm-sashed from the warm, comfortable *inside* of the house. And they are available Super Hot-Dip Galvanized (on special order) so they never need maintenance-painting. Fenestra Galvanized Basement Windows are also available now! And check on Fenestra's easy-to-use inside Metal Storm Sash and Screens, too.

\*®



## ANNOUNCING *Fenestra* PRESSED STEEL LINTELS



**Immediately available for all standard Fenestra Steel Residence Windows**

For everything in windows for the modern home call your Fenestra Representative today. Or write Detroit Steel Products Company, Dept. MB-6, 3401 E. Grand Blvd., Detroit 11, Michigan.

## *Fenestra* READY-TRIMMED STEEL WINDOW UNITS

**A complete package—Sash • Frame • Hardware • Inside Trim • Outside Trim**



# Spilled Foods Won't Spoil AZPHLEX

## FLOORS . . . *they're greaseproof*

Wherever food is served . . . that's where *Azphlex* Thermoplastic Tile serves best. It's greaseproof against the fats and oils commonly found in food . . . it's long-wearing, made to give years of service . . . and it's mighty *good looking* too, with the widest color range in its class.

**In Cafes, In Cafeterias  
In Restaurants and Residential  
Kitchens**  
**Use *Azphlex* because it has . . .**

### BEAUTIFUL BRIGHT COLORS

Colors unequaled by any other similar product in the same price class. *Azphlex* gives you 17 light, bright colors that are best suited for modern decoration and design.

### DOLLAR STRETCHING DURABILITY

*Azphlex* has resistance to abrasive wear that means lasting beauty and low cost. The smooth surface and through-the-thickness marbling keeps *Azphlex* floors looking new for years.

### A LOW PRICE TAG

Here is a premium quality tile in premium colors. Yet it costs only a few cents more per square foot than ordinary tile. Convince yourself. Compare it with any other similar product.



## UVALDE ROCK ASPHALT CO.

FROST BANK BUILDING • SAN ANTONIO, TEXAS

Makers of AZROCK

AZPHLEX • VINA-LUX • DURACO

"Azrock Makes Fine Floors"

## LETTERS

two weeks. The Sunday newspaper covered the opening with a full page of pictures and descriptive material. There were 19 spot announcements on one of the local radio stations, plus nine half-hour radio programs devoted to describing the property.

The entire cost to this organization was \$125 for a half-page advertisement. Approximately 9,000 people inspected the property during the two weeks it was open, and the home was sold within two days for \$16,500. To date we have sold 11 new homes, all different, with five more now under construction.

MELVIN R. MATHEWS  
Country & Town Realty Co.  
Elmira, N. Y.

### WHY NOT BETTER TRAILERS?

Sirs:

Do you intend to include the mobile home—the house trailer—in your analysis of living quarters? Surely here is a fertile field for planning interior use of space. Today's trailer is adequate for camping on short vacations only and the quality of paneling is very shabby. Why not adequate hot water, built-in dishwashers and disposal units, air conditioning, adequate storage space, and convertible sleeping equipment and dining spaces?

T. N. SMITH  
Levittown, N. Y.

### STORAGE WALLS

Sirs:

My thanks on behalf of the Lumber Dealers of the country for the page you gave (H&H, Apr. '52) to the research work which the Lumber Dealers paid for at the Small Homes Council of the University of Illinois on storage walls.

There is no better way to get the word of such findings to the industry than through your splendid magazine.

NORMAN P. MASON  
Chairman, Construction Advisory  
Committee of Chamber of Commerce  
North Chelmsford, Mass.

### WHY LUG LAUNDRY?

Sirs:

Now that washers and driers minimize laundry, why not design houses that really minimize laundry? Why lug heavy wash all over the house when it might as well never leave the bedroom and bathroom area?

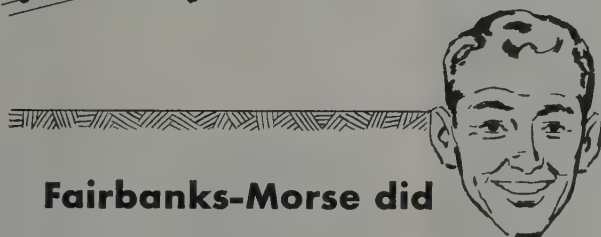
I'll wager that 90-95% of all laundry originates in the bedroom and bathroom—even if the ironing should be taken to the kitchen, it would still save on underwear and towels which need no ironing.

I know a woman who hung her laundry from a second story window. She carried the clothes to the basement to wash them, then went back up stairs to hang them—then back to the kitchen to iron—and her bathroom was large enough for an automatic washer!!

MR. R. C. MAXANT  
Ayer, Mass.



"Ding dong bell,  
the motor's in the well!  
who put it in?"



Fairbanks-Morse did to give you the most  
efficient deep well water system ever built!

## FAIRBANKS-MORSE Submersible Pump

Even if you know all about pumps, you'll agree that a pump with a motor that operates under water is *unusual*!

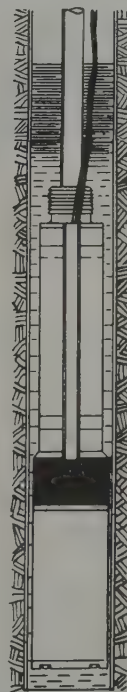
Well, we've built one that operates just that way. The reason is that a pump whose motor *pushes* water *up* the pipe is more efficient and economical in every way than a pump which *lifts* water to the surface! No power is lost turning long shafts or rods.

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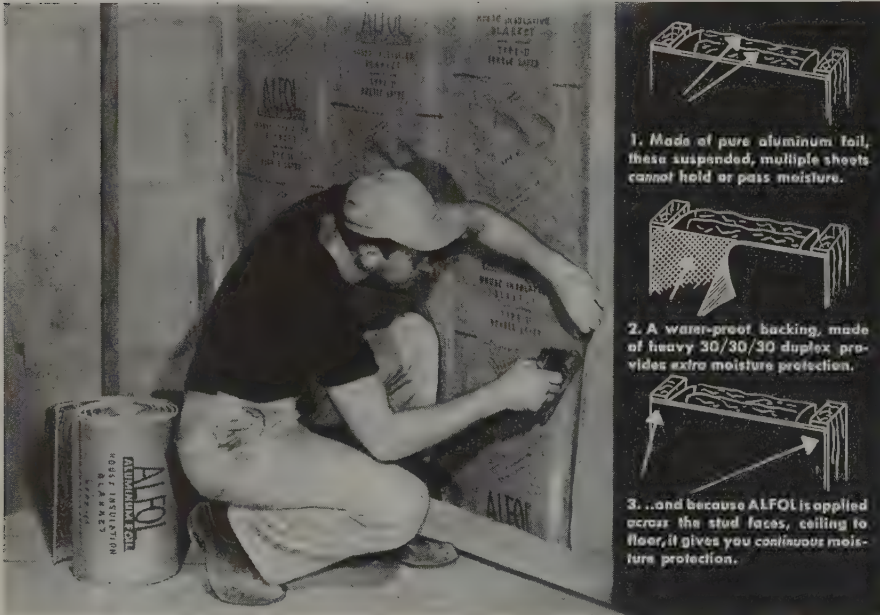
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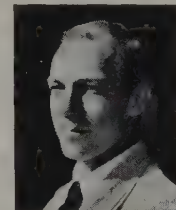
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## BEHIND THE BLUEPRINTS



Architect **GEORGE HAY**, 32, was born in Media, Pa. and trained at Pennsylvania State College in architecture for two years and landscape architecture for two more, receiving his degree in the latter in 1941. Hay worked for New York's Regional Plan Association as land planner, for architects in Seattle, Philadelphia and Tucson as architectural designer and site planner before opening his own office (almost accidentally) in Media three years ago. His practice is largely residential, most of it for builders. His neat, conservative merchant-builder houses boast excellent site plans and uncluttered design, are a refreshing change for tradition-bound colonial-minded Philadelphia.



Thirty-two year old architect **JOHN MACLANE JOHANSEN** is a Harvard product, and graduate of the Cambridge offices of Carl Koch, Marcel Breuer and G. Holmes Per-

kins. Johansen worked for the George A. Fuller Co., big New York contractors, on naval construction during World War II, went to Washington for two years' design research on housing standards in the National Housing Agency, working with Vernon de Mars and Carl Koch. He joined Skidmore, Owings & Merrill in 1947, left two years later to start his own practice first in New York and then in New Canaan, Conn. An able residential designer, Johansen is carving out a reputation for meticulous and imaginative detailing, whether the house is his own (July issue '51) or a client's. This youthful architect who first aspired to be a painter is an excellent water color renderer.



Thirty-three year old **JOSEPH WARREN PLATTER** has a Bachelor of Architecture degree from Cornell University dated June '41. The young architect's design experience is

well balanced, going back to World War II when he worked for New York industrial designer Raymond Loewy and for architects Shreve, Lamb and Harmon. In June '48, Platter joined the Saarinens near Detroit, Mich., close to the rustic home of famed Cranbrook Academy. Since November '50 he has been a member of the firm. Published this month is Platter's lift slab house which will be completed next year.



**ROBERT E. ALEXANDER**, 44, is an accomplished architect and ex-football player. Born in New Jersey, he won his architectural degree with honors at Cornell, migrating West to practice in California in the mid '30s. He has served on the Los Angeles City Planning Commission, the Public Housing Administration (as consultant), and a U. N. mission to India (1950). Dramatic result of the latter was Alexander's plan for a new town, Pallikarania, to be created out of 3,700 acres of swampland in the state of Madras. Since 1949, Alexander has worked with Richard Neutra, a collaboration so time-consuming that Alexander closed his own office several months ago.



**HERVEY PARKE CLARK**, 53 and **JOHN F. BEUTTLER**, 61, partners since 1946, have designed residential, public and 16 telephone company buildings in the San Francisco area. Clark was born in Detroit, schooled at Yale and the University of Pennsylvania, employed by New York architects Raymond Hood, Godley & Foulhoux in 1930 and by two Los Angeles design offices. Beuttler is a Bay Region native, graduated from the University of Pennsylvania (Bachelor of Architecture). He worked with architect George Kelham of San Francisco for 20 years on all types of building design.



**Handsome, blond O'NEIL FORD** is a Texas architect whose trademark is modern houses with a distinctly regional Southwestern flavor. Forty-seven year old O'Neil Ford was

born on a Texas farm at Pink Hill, and educated at North Texas State College. He received no formal architectural training but mastered his profession through correspondence courses and in the Dallas office of David R. Williams. Ford designed rural housing for the government during the '30s, served as an Air Force flight instructor during World War II, went into partnership in San Antonio with Jerry Rogers in 1940 and is still practicing with him. Ford participated in experimental work on the Youtz-Slick system of concrete construction, incorporated into the design of Trinity University (AF, Sept. '51).

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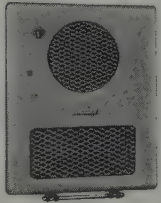
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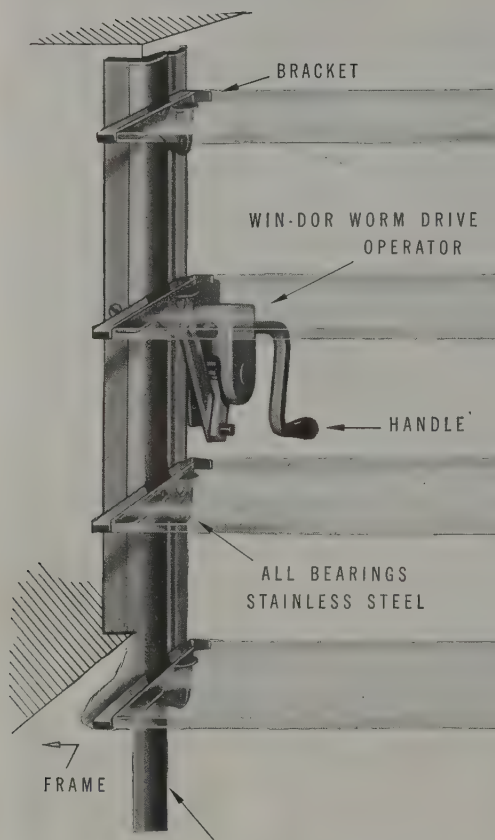
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## Air conditioning, because--

*Now that the warborn housing shortage is over and the formation of new families has fallen off to around 700,000 a year, how can home-building keep on at 1,000,000 houses a year plus?*

**There is only one possible answer:** for the first time ever, homebuilders must now create a replacement market and sell new homes at least 250,000 faster than new families are formed. In other words, the homebuilders must make their houses so much more desirable that fewer and fewer people will be willing to go on living in their old homes and more and more antiquated houses will at last be eliminated and torn down.

**The replacement market potential is enormous.** In the 20 years since Mr. Roosevelt found one-third of the nation ill housed, new construction has barely kept up with population growth, so some 80% of the population still lives in the same old houses as in 1932—except that now they are 20 years older.

Perhaps as many as 10,000,000 of these are ripe for demolition now, but since the war the pace of demolition has been only about 60,000 a year. At that rate, it will take until A.D. 2119 to wipe out the last of 1932's blighted dwellings.

**The automotive industry now sells 84% of its new cars in the replacement market,** whereas homebuilding sells only 6% of its houses in the replacement market (60,000 out of 1,000,000). This is because the auto makers make each year's new model so much smarter, so much roomier, so much easier and more economical to operate, so much more comfortable that very few people who can afford a new car stick to the old one.

**Why can't homebuilders start doing the same?** The cheapest and most obvious places to start are these:

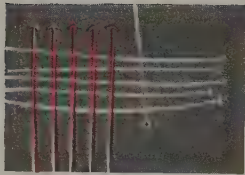
1. **Get a good architect** to improve the design of their homes, take off the Model T look, streamline their construction and build in more of the increased comfort and livability architects have been developing for higher priced houses;
2. **Make their houses a little bigger** and bring the room sizes at least up to public housing standards. Figures from both FHA and Bill Levitt agree that living and bedroom sizes could be increased 16% to 20% for only about \$200 a house;
3. **Stop crowding houses so close together,** especially on low cost land. Most of the criticism of the postwar tract developments could be silenced with a few more front feet at a net cost of less than \$200 per house;
4. **Take advantage of the package mortgage** to build in more labor-saving devices and sales appeal like dishwashers, refrigerators, automatic laundries, garbage disposers, television sets, wall-to-wall carpets, etc. (Some of this will have to wait until Regulation X is repealed, and perhaps most of it should be made optional at \$1 a month extra per unit.)

But right now homebuilding needs something really dramatic to make the home-buying public sit up and take notice that yesterday's house is just as obsolete as yesterday's car.

**That is where air conditioning comes in,** for there is no one new feature which could make such an impression at so low a cost. It is much less expensive to air condition a new house than an old one. It is relatively much less expensive to air condition a small house than a large one. It will become still less expensive as the manufacturers rethink their units for the builders' house market.

We can imagine no new sales feature which could do as much to make yesterday's house obsolete and create a whole new market for tomorrow's house.





air conditioning

## Is air conditioning in for a boom?

**Already in low gear and picking up fast, air conditioning may shift into high just as soon as credit restrictions are relaxed on houses over \$12,000. Air conditioning, the builders' newest sales tool, could develop into the greatest single feature to identify the 1953 model**

"Five years from now a house in the Southwest without some type of refrigerated air conditioning, even though it is an 800 sq. ft. house, will be as obsolete as a house built today without a plug for a refrigerator."

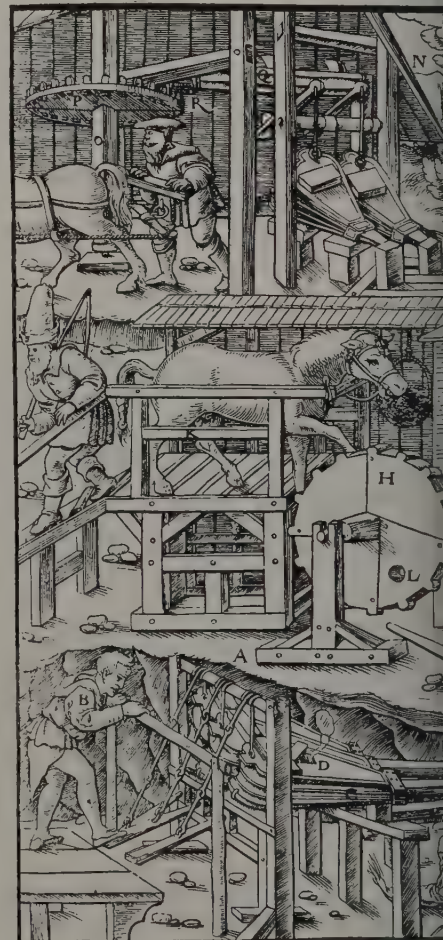
When Texas builder Dick Hughes made that widely quoted statement at a "Trade Secrets" meeting last fall many builders thought he was dreaming and even most air conditioning manufacturers were inclined to agree. Air conditioning might be practical for the luxury house market, they thought, but the builder house would have to get along with an attic fan, window units or evaporative coolers. It didn't seem to be in the economic cards to install a central, mechanically operated refrigeration unit.

Six months ago a poll of merchant builders would have found almost none with active plans to install a central summer cooling system in houses selling for less than \$25,000. But in the past few months the residential air conditioning market has suddenly burst wide open. A number of builders who had been thinking about air conditioning for some time aggressively decided to get up and get going. Word also got around that Dick Hughes had built a model house which was to be the first of a new line with "thousand-dollar" air conditioning. Dallas builders Lewis & Lambert, Laughlin & Silver boldly announced a project of over 200 fully air conditioned houses at \$12,500, and HOUSE & HOME helped to spread their significant story (*April issue*) to builders everywhere.

The fact that Dallas builders were actually taking the plunge had a strong influence. Almost across the street Crow & Benda took action to air condition 125 of their \$12,500 houses. Other builders in Dallas (*see p. 85*) began making similar plans. One architect in Ft. Worth, Charles Armstrong, is doing plans for nearly 450 air conditioned houses. Houston, too, is booming.

In the dry Southwest where evaporative coolers have been used for years, there is a growing trend toward central refrigeration systems in higher priced houses, for the evaporative coolers, turning heat into humidity, fall down just when they are needed most. Starting in the Southwest and

The Bettmann



*Air conditioning is not new. Woodcut of 1530 (right) shows three methods used in 16th Century mines to suction off heavy vapors by bellows. Top two versions work by horsepower with assists in the form of hay and whip. Third is manpowered. Miner is seen at the lower right. Rube Goldberg was not born until 353 years later.*

the Gulf States, air conditioning in builders' houses has moved up through Ohio and spread to New England.

### On the move north and east

Builders using a central summer cooling system are still few. But they are significant because they are forerunners of a larger group to come. They echo a remark by builder Clayton Wyman of Houston, "Tomorrow, any house without air conditioning will be like a house today that doesn't have central heating." Reports on 35 cities (p. 85) are proof that air conditioning in builders' houses is here to stay.

The builders or architects incline to scorn

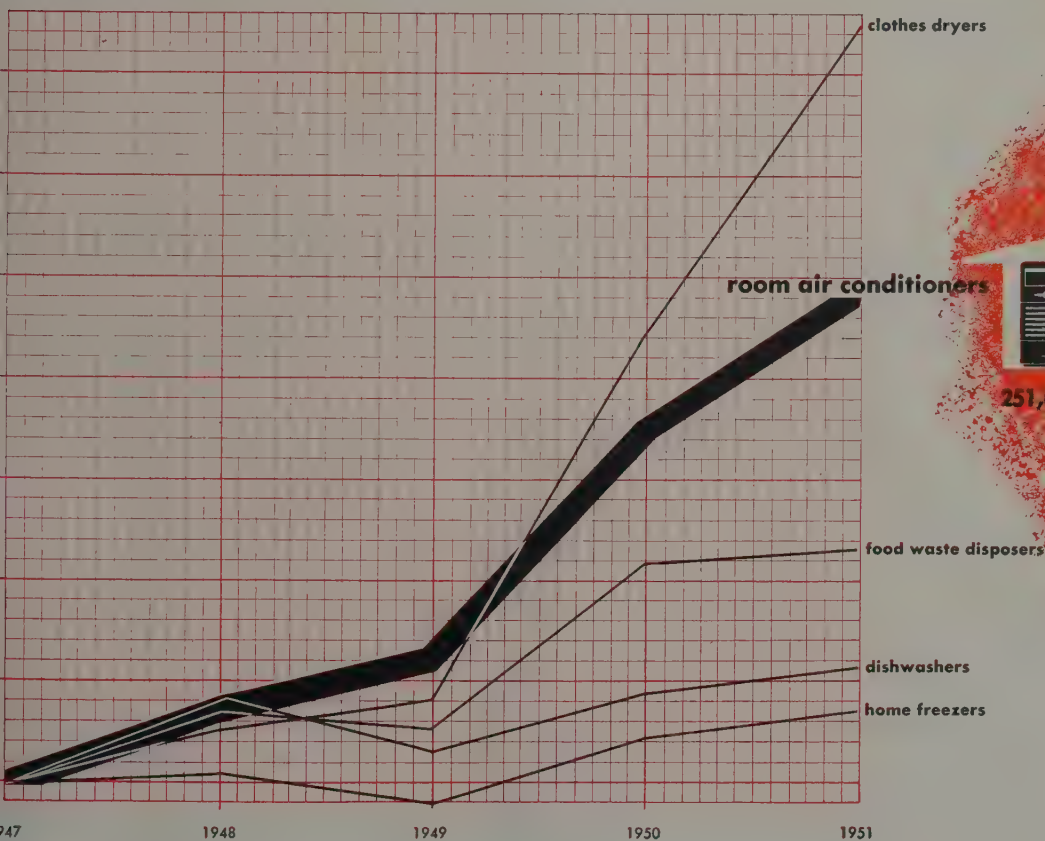
year round residential air conditioning as a specialty of the South and Southwest will be surprised to hear that no less than ten builders in the Philadelphia and New York City areas are experimenting with air conditioning right now. A builder in Stamford, Conn. is using air conditioning as a major sales tool. Westchester County's first summer-cooled project was opened two months ago. On Long Island and in New Jersey more than half-a-dozen builders are putting air conditioning in their houses.

Cincinnati builder Robert Wachendorf has put summer cooling in 18 houses at \$35,000 or over and plans to use it in 75 more. "It's a luxury now but it's coming to cheaper homes," Wachendorf says. "It's

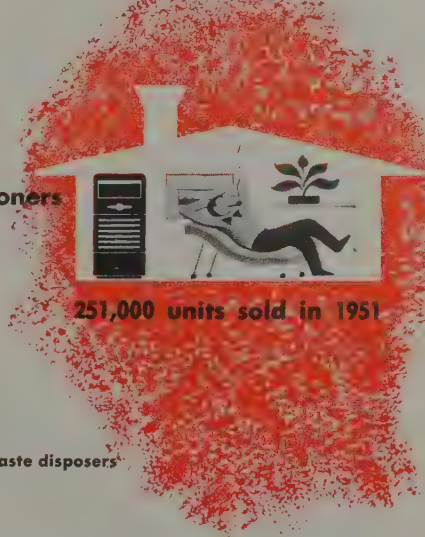
like a self-starter on an auto: first a luxury, then a necessity. We're coming to it." Arthur Radtke, air conditioning dealer, says, "Cincinnati is square in the middle of a pollen belt. It won't be much trouble convincing people that it's worth \$600 to \$1,000 more to get air conditioning."

The path of residential air conditioning will undoubtedly move from the South and West to the North and East just as summer cooling did in commercial installations. Before the war air conditioned drugstores and restaurants were far more common in the South and Southwest than in the North. Kansas City, for example, was far ahead of New York City in air conditioned stores and eating places. But now a restaurant in New

### 5 years' sales of air conditioning



42,900 room air conditioners sold in 1947



251,000 units sold in 1951

data from Electrical Merchandising



York City that is not air conditioned loses all its summer customers. Every postwar office building in New York City has been air conditioned. It has been true the country over that when people work in air conditioned places they want air conditioned homes.

### The big stumbling block: price

The high cost of a central summer cooling system is the one big obstacle. Scores of builders would add mechanical refrigeration to their heating systems now if the price was lower. Prices of various systems begin at around \$1,000 for a 1,200 sq. ft. house in addition to heating.

Prices today are based on neither a volume market nor the manufacturers' determination that the volume market is worth going after. Busy with their commercial sales and harassed by metal shortages, few big producers have made a serious effort to move into the residential field.

Air conditioning has been hard hit by Regulation X. If equipment raises a price from \$12,000 to \$13,000 the VA down payment is \$1,790 instead of \$960. An FHA buyer pays \$3,000 instead of \$2,400. Before Korea the FHA down payment would have been only \$200 more (\$2,600 vs. \$2,400). VA down payments could have been zero. Today a veteran must pay 80% of any price increase above \$12,000. An FHA buyer pays 60% of any increase between \$12,000 and \$16,000, then 80% of increases from \$16,000 to \$20,000 and 90% from \$20,000 to \$23,000.

FHA's Curt Mack says: "The inclusion of an appropriately sized and specified air conditioner or other air conditioning devices—such as cooler, or summer-winter hookups—would not of itself indicate a value less than its cost."

### More efficient equipment

The same trend to smaller, more compact, more efficient units which has gone on in the heating field is beginning in air conditioning. Early residential units were identical with commercial units and were used in large houses where space was not a problem. But space is a problem to builders. Next to cost, the greatest headache for a builder planning air conditioning is to find space for equipment and ducts. Manufacturers know this, and are already at work making their units smaller and designing them for home use where cooling problems are different from those of stores and restaurants.

### Will the public sell itself?

With some encouragement, the public will sell itself on the benefits of year round air conditioning. Americans love comfort and luxury and are willing to pay for them, as the history of the automobile clearly shows. The public insists on speed, horsepower, efficiency and luxury even in its "low priced" cars. The public will also buy better heating, larger TV sets and pay millions for health items like vitamins once it is sold on them.

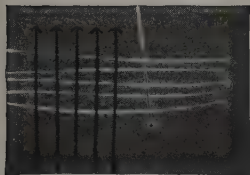
In year round air conditioning the builder has a greater potential sales appeal than in any device since central heating replaced the coal stove. *Cooling* is only part of the sales story. That may be enough in Texas or Arizona but in a large part of the US the plus-values of air conditioning may turn out to be even more attractive. Getting dry air in summer may be of more importance than getting cool air. Clean air year round, from which dust and dirt are removed, may revolutionize housekeeping. Air that is filtered not only is cleaner, but pollen and other irritants can also be removed. A combination of special filters, ultraviolet lamps and deodorizer lamps in the ducts can reduce smells, germs, allergies and provide air that is "hospital clean," as one builder tells his prospects. The health angle might come to be the biggest sales argument in favor of air conditioning.

### Air conditioning

**may be the greatest sales attraction a builder can offer and the one feature that makes his house a 1953 model**

To keep their million house per year market, merchant builders will have to develop a replacement market of at least 300,000 houses annually. They must get that many old houses junked because people leave them to move into better homes.

They might take a page from the automobile manufacturers' book. No one questions why the new cars sell year after year. Old cars are made obsolete by a succession of improvements that have made wanting a new car almost a national habit. But houses don't go out of date. Once the average man has bought a house he sees no advantage in moving unless he can get a very much better house. Air conditioning may be the incentive which will convince him that he wants a better house.



air conditioning

## What are the plans of the merchant builders?

### Houston leads the way

Here are results of a 35-city survey on residential air conditioning. It reveals that an amazing amount of activity is going on. Reports on Dallas and Houston are given in some detail, because what is happening there today may well happen in many other cities tomorrow.

The local Chamber of Commerce proudly claims that Houston is the most air conditioned city in the world. It has impressive figures to back up this boast. More than 2,100 houses are cooled with central systems and in addition more than 48,000 houses have window units or small room coolers. Nearly 4,000 commercial installations have been made.

In only one way does Houston bow to Dallas: last summer some 500 Cadillacs were air conditioned in Dallas and only 300 in Houston—perhaps because the Lone Star Olds Cadillac agency that developed the system is in Dallas and word got around there faster. Throughout Texas close to 1,200 cars were air conditioned by this one firm, 95% of the Cadillac owners paying \$695 for the privilege. Air conditioning has obviously arrived.

Houston may have more big houses that are air conditioned than all the rest of the country put together, provided Dallas is not included. No one knows how many big houses in exclusive River Oaks have central systems, but in smaller and newer Tanglewood where the average house costs above \$45,000, the management estimates that over 75% are air conditioned.

A poll of Houston merchant builders in the over \$30,000 field shows that about three-quarters agree with builder *Don Teachworth* who says, "Air conditioning will help to sell any house," and *J. H. McQuown* who says, "It is foolish to build higher priced houses without air conditioning." A few are less emphatic, feeling that while air conditioning helps to sell houses put on the market in summer, it doesn't necessarily in winter. A number of big houses are being built with ducts sized for summer cooling and space left in the equipment room for a cooling unit, but the actual installation is up to the buyer.

It is highly significant that a man ordering either a custom-designed or a speculative house now realizes that in the Houston market his house will have less resale value if it is not air conditioned. Last year *Robert Straus*, an air conditioning distributor, moved into a handsome new house and had no trouble selling his old house because it, too, was air conditioned. But the man who bought the old house had serious trouble selling *his* house, because it lacked air conditioning.

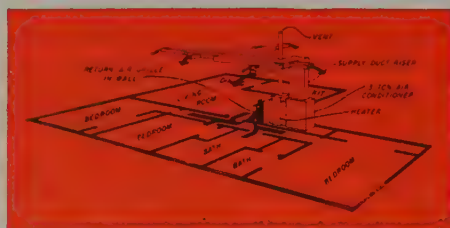
Houston merchant builders watching the boom in large-house cooling note that air conditioned apartments are always 100% rented when plenty of noncooled apartments at the same price remain empty. They know that house buyers want air conditioning, but can they pay for it? A number have decided they can, and are going ahead.





P. S. Luttrell built the house at the left as an experimental model to try out air conditioning, truss roof construction and freestanding storage walls. On the basis of this house, he is set to start building a production line house this fall.

House at right is air conditioned model now being sold by Ira Berne in Houston. It was a stock model to which he added air conditioning. It has been on the market only a short time and if his buyers seem to want summer cooling, Berne will redesign this house to make it more efficient.



**P. S. Luttrell**, one of Houston's big builders, sells houses from around \$10,500 to \$15,000. "We saw air conditioning coming," he said, "and began working on it a year ago. Thus far we've had no trouble selling our houses, but some day the buyer will walk past our uncooled houses without going in to look at them. I believe air conditioning is one way to keep ahead of the procession—and keep people coming in to see our houses. I'd say 75% of houses will be air conditioned in three years if they sell at over \$12,000."

Luttrell has already built one experimental house with air conditioning (see above) but he plans to spend the summer working out his plans to reduce air conditioning costs through more efficient design with architect Ned Cole. By fall he hopes to start a new development that eventually will have 1,500 air conditioned houses.

Builder **A. J. Whipple** believes that a two-car family can be educated to air conditioning fast, hopes to start proving this in a 600-acre development this summer. First he will "try out the idea" in a group of \$16,500 to \$22,000 houses. Whipple thinks 10% of the selling price of a house is enough to pay for both air conditioning and heating, already has a bid of \$1,600 for heating and cooling equipment but he is still shopping around. Four architects, working on his new plans, are seeing to it that even if people don't buy air condition-

ing, they will get the proper sized ducts and an equipment room that will take a central unit. Having built 2,500 houses in Houston, Whipple's switch to air conditioning will undoubtedly influence the market.

**Ira Berne**, who has closely watched the merchandising methods of his friends Bill and Alfred Levitt, has already put centrally air conditioned houses on the market in his Westwood development. He sells one model without air conditioning for \$13,250. The same house with a 3-ton Westinghouse unit sells for \$14,500. Both houses have three bedrooms, two baths, and both a garage and carport. The house without air conditioning also has a screen porch (see plan p. 114). Other models in Westwood sell from \$9,000 to \$13,000.

Berne is frankly experimenting. What he learns in Houston should be of interest to builders throughout that wide area. "I'm testing air conditioning in an arbitrary market," he concedes. "Anything over \$12,000 today pays a premium because of Regulation X. We don't know much about this market and we'll have to try it out. Everyone says he'll buy an air conditioned house at this price, but such talk doesn't mean much. If I sense there is a mass market at this price we'll try to get the price down by redesigning the house for air conditioning. If I can sell one or two a week I'll put them in a higher-priced neighborhood and advertise them."

His air conditioned model, one of his standard houses, was not designed for air conditioning. MIT engineer **Sid Atlas**, whose firm probably does more residential installations than any other in Houston, said he could cut \$200 or \$300 out of the system if the house was designed around the equipment with a 2-ton unit, central plenum and short ducts leading to each room. In a redesigned house, a 2-ton unit would be cheaper and as efficient.

Berne had sold five of his first eight air conditioned houses in the first three weeks they were on the market. They were scattered among his other houses, were the highest priced he had, and were not advertised. Under these circumstances, he feels encouraged to go ahead. However only some really hot weather will make the test valid.

Builder **Dewitt Krahl**, who has used air conditioning in ten of his \$30,000 to \$40,000 houses, says it definitely helps to sell houses in that price class. He also puts \$2,500 worth of air conditioning in some \$16,000 houses, which raises the price to \$18,500. He says that a large part of the cost of the air conditioning is added to the down payment and this eliminates many prospects. He is in favor of a central cooling system but feels that in the \$14,000 to \$16,000 market people cannot afford the extra down payment until Regulation X is canceled.

Builder **William Borden** is looking for a 3-ton air conditioning unit which he could buy for \$1,200. If he found a satisfactory one, he would put it in some \$12,000 houses.

Builder **Andy Kivlin** admits he's on the fence about air conditioning. He builds about 15 houses a year at \$30,000 to \$60,000, air conditions all of them. But he is also eying the \$12,000 to \$14,500 market and thinking about summer cooling such houses. He would like to build 50 or 60 at that price to experiment with the market and if the houses are a success he might build twice as many next year.

Engineer **J. S. Norman Jr.**, a member of his father's building firm, is trying to get a residential air conditioning unit with an air cooled condenser (and no water tower) which would operate for around \$5 per ton a month. He is working with a local firm to develop such a unit, and when they get it, they'll use it in 125 or more \$10,000 to \$15,000 houses a year. Norman says: "I really believe that air conditioning is coming and coming rapidly. In three years it will be as common as an attic fan."

Builder **J. A. Kelly** is planning 30 houses at from \$20,000 to \$22,000 with air conditioning. Dealer **B. W. Keeland** reports that "lots of builders are interested in air conditioning. It's just a question of money."

## Dallas is an air conditioned town

**W. W. McMillan**, undoubtedly the pioneer of all merchant builders in Houston, put 2-ton central units in 26 houses at around \$10,000 some 18 months ago. Despite the fact that he sold them all, this experiment did more to discourage air conditioning than to help it. Other builders say that people who bought the houses could not afford the operating expense. Dealers in air conditioning equipment say the installer cut his price so low he lost money and went out of business. The mortgage bankers who handled the deal claim the houses were a success from their point of view. McMillan himself says the idea was so new that neither FHA nor VA would give him credit for the cooling equipment, so he had to sell a house at the same price with or without air conditioning. Temporarily out of the building business, McMillan plans to air condition the next houses that he builds. "I think it's the coming thing. In five years it will be impossible to sell even a \$10,000 house without air conditioning."



As for the VA and FHA, their attitude has changed with the times. **Ralph Andrews**, VA loan guarantee officer, has said, "In the moderate priced house air conditioning provides cleaner air and more comfortable living during the humid summer months. It is a deterrent to sinus. Included in the

mortgage package air conditioning is an investment, not an expense."

FHA finds air conditioning in houses at \$16,000 and up no problem since buyers do not use FHA financing. Below that figure the chief problem is monthly operating cost. They feel if air conditioning adds something like \$30 a month, it may be too high for many families. No one knows yet exactly what monthly costs will be, but whatever they are, families will be screened more carefully by FHA to make sure they can afford it. They feel strongly that \$10,000 is too low for air conditioning at today's price. A second problem they face is: Will the equipment wear out in ten years? FHA's present attitude is one of watchful waiting, but they will do nothing to impede the sale of air conditioned houses to families that can afford them.

Like several electric power companies in the South, the Houston Electric Co. sells more power in summer than in winter. During the hot months, everyone in town turns on all the fans, coolers and conditioners available and there is also a much greater load from all the commercial installations, such as restaurants.

As a result, Houston Electric has to buy power from the North. The company has not stopped a builder from adding air conditioning, but it certainly has not encouraged him. But the power company is increasing its capacity to have plenty of electricity by next summer.

Last summer's scorching weather seemed to break all records in Dallas. The temperature got above 100° and stayed there for weeks. Despite this unhappy memory, a small group of men in Dallas smile at the thought of more hot weather.

Said one air conditioning dealer as he leaned out of his car window last month, "Smells wonderful out there. The asphalt's melting!" Last summer 9,170 window refrigeration units were sold (compared with less than 1,000 in 1947) and over 21,000 evaporative coolers. Some 376 houses had a central cooling system added. These averaged nearly 8 hp each, showing that the houses were good sized. This year the Dallas Power & Light Co. reports sales are up at least 25%.

In general, the residential situation in Dallas runs pretty much the same as in Houston. A dozen or more builders of high priced houses who use air conditioning say, along with **S. A. Lewis**, "It sure helps to sell 'em." "It is essential to put in air conditioning," says builder **W. H. Malone**.

In residential heating Dallas has progressed from floor furnaces in 1946 to today's stage with air conditioning added to heating. At each stage, says builder **Clayton Wyman**, people complained that they couldn't afford the new system, "but each time we found that some people would pay more. Now everyone has discovered that you don't have to be rich to afford air conditioning. It's worth its cost for the dehumidification alone."



**George Mixon** puts air conditioning in his houses at \$20,000 to \$25,000. He feels he helped to pioneer air conditioning in apartment houses in Dallas and is proud that his units are fully rented and have a waiting list while many other apartments are empty. He puts oversize ducts in his speculative houses and prepares the house for air conditioning, then he lets the buyer decide whether he wants to put in the equipment. Now paying around \$3,000 for a 5-ton unit in his larger houses he hopes to get the price down to \$2,000. This summer he is starting a new group of 1,600 to 2,000 sq. ft. houses and will add air conditioning.

"Air conditioning in Dallas is coming in by leaps and bounds," said **Paris M. Rutherford** of the Dallas Power and Light Co. "People have made up their minds to be comfortable regardless of cost."

The trend to air conditioning has the blessing of at least one of the big mortgage bankers in Dallas. American General Investment Co. sold the mortgages on the first group of air conditioned builders' houses. **Alden Wagner** says, "From the success that the Lewis & Lamberth, Laughlin & Silver houses had, we know that people in the \$12,500 price class want and will pay for air conditioning. We believe that air conditioning gives us a house that will be more readily salable if we have to take it back."

The LLL & S houses (H&H, Apr. '52) have undoubtedly had an influence in Dallas. "We have had numerous calls from other builders," said **Jack Lowe**, whose firm sold the air conditioning equipment. "Crow & Benda have ordered 125 2-ton units for their houses and we know we'll sell more when others get their plans farther along."

The Lewis & Lamberth, Laughlin & Silver houses have broken no sales records, the builders report, but are selling better than other houses in the \$12,500 to \$13,000 price class. The \$1,750 down payment stops many people who would like these air conditioned houses.

Latest plans are to add a two-bedroom brick veneer house which, with the 2-ton GE air conditioner, will sell for just under \$12,000. It will be a truss roof design and will not have the cement pipe return ducts under the slab. There will be no return ducts and return air will enter the equipment room through louvers in the door. The design of the three-bedroom house (see photograph) remains unchanged.

Builders **James Crow** and **John Benda** have 125 lots now plus another 80 next door. **Charles Armstrong** of Fort Worth designed the two-bedroom models with 1,050 to 1,075 sq. ft. and three-bedroom

models with 1,130 to 1,150 sq. ft. that Crow & Benda will build. Prices will run from \$12,700 to \$12,900. All houses will be brick veneer and will have carports. Crow & Benda hope to have houses on the market by late July. Dallas buyers of homes over \$12,000 prefer brick construction, and the fact that Crow & Benda will offer brick may give them a slight advantage over the Lewis & Lamberth, Laughlin & Silver project next door. Another difference is that the air conditioning system will cost slightly less in the Crow & Benda houses, as there are no return ducts under the slab. Crow & Benda are putting 2 x 4 screeds between the wood floor and the slab and will use this area as a return air space.

**Angus Wynn** is planning 40 houses at around \$13,000 with air conditioning and hopes to get them started this summer.

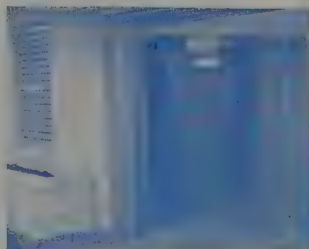
Builder **Vernon Smith**, current Dallas president of NAHB, is outspoken about summer cooling. "In June and July you can't build enough air conditioned houses here to take care of the buyers. Our NAHB directors met last night and while they are not building air conditioned houses now, they are considering them for the future. All believe it is only a question of time—that air conditioning will be here soon. But they are waiting for prices to come down."



Typical Dallas house at over \$50,000 price with air conditioning

Right: Lewis & Lamberth, Laughlin & Silver houses

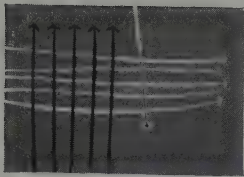
Using forced draft towers, builders can put cooling unit and tower in garage.



Photos: Acme; Ulric Meisel—Photo Associates; Langley Studios.



(Continued on page 96)



air conditioning

## How are architects designing for air conditioning?

### Architectural planning can strikingly reduce the cost of cooling

The two Texas houses on the next six pages illustrate some of the plan and design steps architects are taking to make summer cooling less expensive by reducing the amount of outside heat that gets in and has to be taken out.

The sun is the greatest enemy of the air conditioned house. The less direct sunlight and outside heat permitted to enter a house, the lower the cost of buying, installing and operating an air conditioning system, and the more satisfactory the results. Controlling solar heat means keeping out hot summer sun, which works against the air conditioning plant by increasing its cooling load (just as it means letting in winter sun, which works with the heating plant by decreasing its heating load).

In an uninsulated one-story house, twice as much sun heat will come in through the roof as will come through the walls and windows of all four sides combined.

A two-story plan can cut the roof area of a house in half, thus reduce the heat transmission through the roof in proportion.

Through the sides the biggest heat gain comes from sunlight streaming through unshaded windows, particularly on the west. Conducted heat coming in through windows and side walls is a lesser problem, and there is practically no problem at all with convection, for the higher air pressure normally maintained by the air conditioning plant inside means that almost the only hot air that gets in is the supply air sucked in for ventilation.

If the house is properly designed to meet these problems, 1 ton of cooling should be enough for a little over 500 sq. ft. If the house is not properly designed, 1 ton of cooling may not be enough for even 300 sq. ft.

### So, more and more architects are beginning to use these primary design tools:

1. **WHITE OR LIGHT COLORED ROOFS.** These will reflect nearly half the sun heat that is absorbed by a dark roof.

2. **INSULATION.** This is most important under the roof, also important on the west wall, helpful on the south and east, useful only for winter heating on the north. A well insulated white roof will let in only a quarter as much heat as a dark roof without insulation.

3. **SUN SHADES.** Shield all windows on the east, west and south with sun screens, jalousies or side overhangs. (For a variation of this, see the vertical sun screen on page 90.)

4. **SOLID WEST WALLS.** Put as few windows as possible on the west side, where even a 4' overhang cannot keep the afternoon sun from shining right in at the hottest time of the day. Try to place rooms that require few windows—carport, garage, utility, storage—on that side. A fully air conditioned house is not dependent on cross ventilation, so any

room can have a blank west wall. Important by-products of solid walls: lower heating costs, greater freedom of furniture arrangement.

5. **LANDSCAPING.** Use trees and shrubs, vines and hedges—to keep the sun off roof, windows, and wall areas. A house strategically placed among trees takes advantage of their natural shade to help its mechanical cooling process inside.

6. **HEAT-ABSORBENT GLASS, DOUBLE GLAZING.** The former will pick up 40% of the sun's heat (though some of this will be passed on to the inside by conduction and reradiation after the glass heats up). Its blue-green color also minimizes glare and makes the house look cooler. Double glazing is most useful in winter, when the difference between inside and outside temperatures may be as great as 60°, but is only a small factor in keeping the house cooler in summer, when the temperature differential is less. Double glazing with heat-absorbent glass as the outside layer combines the advantages of both.



# 1. THE VENTED HOUSE opens its windows to favorable breezes, uses its air conditioning only when necessary



*East side of bedroom wing is open to prevailing breezes; bedrooms have awning sash, living room, below, a deep partly screened porch.*

This house was planned so that it could be cooled and vented either by natural ventilation or mechanical refrigeration.

Unlike Dallas, San Antonio rarely has uncomfortably hot nights, and several months of the year there is a favorable easterly breeze. So, in this house, and in all the houses Architects Ford & Rogers have done in the area, they have made window openings big and east-facing when possible, always shielding them with porch roofs, sun-shades or planting. "Then we cut out all the west sun we could with blank walls well insulated. Where it seemed wise to put in a bank of west windows for light, cross ventilation or a glimpse of the garden [notably in the stair well of this house], we hung shutters vertically from the overhang, 30" from the wall."

For natural cross ventilation, they strung the floor plan out in an H shape, so that at no point is the house more than one room thick. Bedrooms and living room, faced east towards a view of a gentle green valley and a cooling summer breeze, were given generous areas of movable awning-type windows and sliding glass walls that can be used for ventilation when the outside temperature is below 80°.

Cooling load calculations indicated that ten tons of refrigeration would be required to cool this 5,039 sq. ft. house down to 82° when the outside temperature is at the 100° mark. But such a temperature differential was not considered necessary: the owners didn't demand it and it would have been too expensive. So the architects, engineers and owners decided to install only seven and a half tons, which has proved satisfactory.

LOCATION: San Antonio, Texas  
O'NEIL FORD & JERRY ROGERS, Architects  
ARTHUR BERGER, Landscape Architect  
BIBB BROS., General Contractor

*Photos: Ulric Meisel*



*West side of bedroom wing (photos above and opposite) faces a patio garden. Three important design elements are used here to block hot sun: a nearly blank wall with a small, curtained window; roof and porch overhangs to west and south; a louvered sun-screen 30" out from windows.*







*Living room has floor-to-ceiling glass strip to north; full glass wall and screened porch to east. Note ceiling cool and warm air register.*



*Open east porch is insect-screened outside living room. Awning sash above scoops valley breezes into bedrooms.*



*Steps, left, lead down to garden court from higher hillside level. Second floor windows light the owner's workshop.*

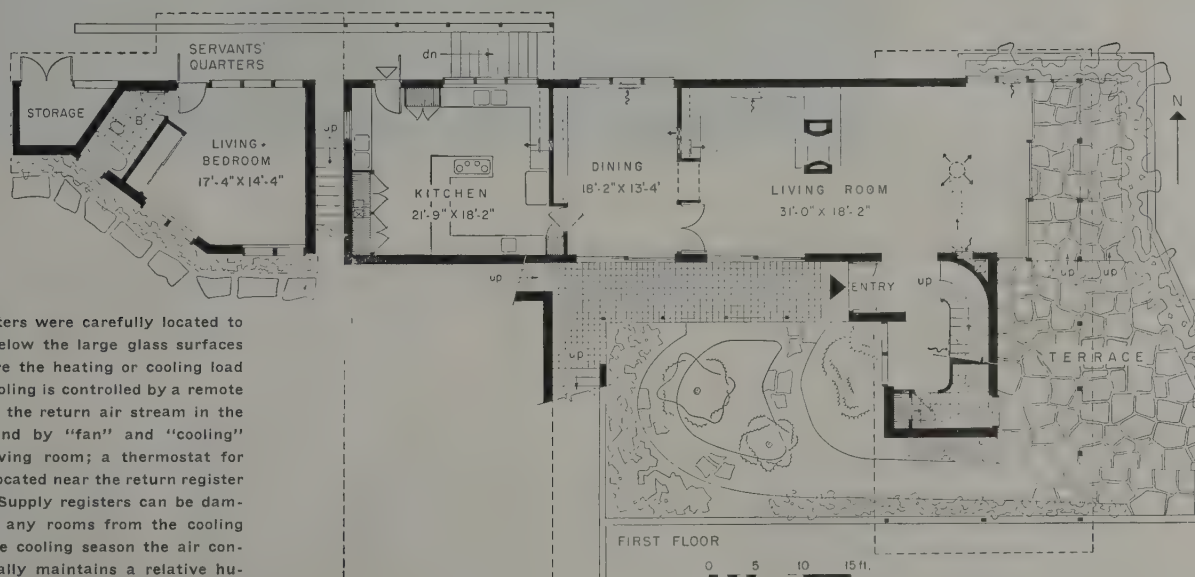
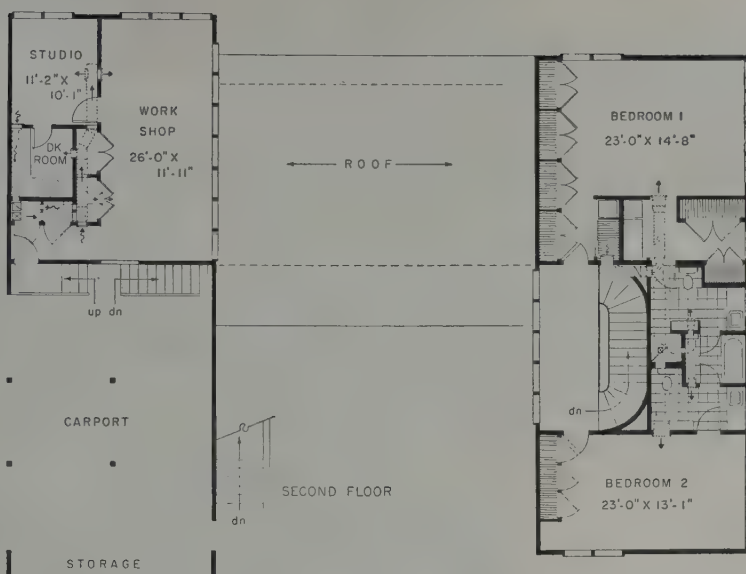




Carport, and workshop (blank wall at left), were placed on west side of plan, given sun-reflecting roof. Servants quarters are separate on a lower level at the left.

#### Air conditioning system (see floor plans)

Year-round air conditioning for the whole house is provided by a 7½ ton self-contained unit and a 250,000 Btu-per-hr. gas-fired winter air conditioner, both located in a basement equipment room. The cooling tower is an all-redwood forced-draft "Hideaway" tower, located on a slab under the house and discharging through a louver in the north wall.



Return air registers were carefully located to take in air from below the large glass surfaces in the house, where the heating or cooling load is the greatest. Cooling is controlled by a remote bulb thermostat in the return air stream in the equipment room and by "fan" and "cooling" switches in the living room; a thermostat for heating control is located near the return register in the stair hall. Supply registers can be dampered to eliminate any rooms from the cooling system. During the cooling season the air conditioner automatically maintains a relative humidity of not more than 55%.

To keep down heat transfer and noise, adequate insulation was used:

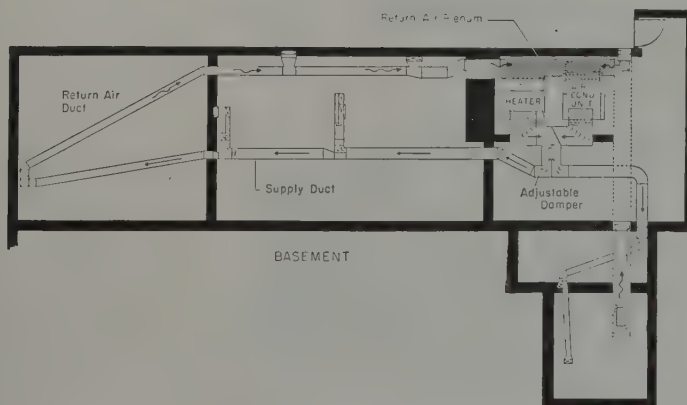
**WALLS:** Brick cavity walls have dead air space. Wood frame walls have aluminum foil insulation.

**ROOF:** A light-colored, sun-reflecting crushed stone over 5-ply built-up roofing over 2 x 6" decking 4" mineral wool batts underneath, and aluminum foil. (¾" glass fiber acoustical tile on ceilings helps reduce noise).

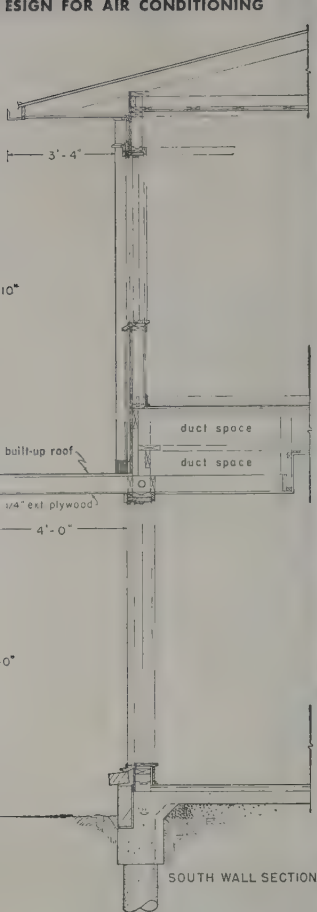
**GROUND FLOOR:** Fiber insulation board under plywood subfloors.

**DUCTS:** All ductwork is covered with 1" of glass fiber blanket insulation and vapor-sealed with aluminum foil.

**COST DATA:** The house, 5,039 sq. ft. of floor space (plus 2,400 sq. ft. of terraces, porches) was built for \$13 per sq. ft. including air conditioning. With 7½ tons of refrigeration used, this figures to 670 sq. ft. per ton of air conditioning, considerably more square footage per ton than the completely sealed Dallas house (p. 94).







*Dropped ceiling over living-dining areas carries ducts for both floors*

## 2. THE SEALED HOUSE ignores nature's extremes,

**creates its own climate year round**

LOCATION: Dallas, Texas  
DE WITT & SWANK, Architects  
BOCK CONSTRUCTION CO., Contractors

*South windows have fixed double glazing, 3'-4' overhangs*



The occupants of this \$100,000 house breathe conditioned, controlled, filtered air 365 days a year.

Built by the Carrier distributor in Dallas as a home for himself and as a showplace for his air conditioning equipment, the house is in effect a sealed box, entirely independent of the weather outside. The windows have become openings for light and view only; all of them are fixed glass set in putty. The only movable openings to the exterior are the four outside doors.

The design illustrates some of the possibilities that the growing field of residential air conditioning has introduced to the drawing board. The big factor of outside ventilation has been *dropped* from planning considerations. This means that architects and builders can put rooms where they want them, give their clients:

▶ *A more, compact, economical floor plan*—it is not necessary to work out a rambling plan with wings, ell, breezeways, offsets, etc. to catch prevailing breezes. Thus total wall area can be reduced and the same square footage put into a squarish plan, saving the added cost of the extra walls.

▶ *Fewer orientation worries*—the house doesn't have to be turned, twisted and redrawn on its lot to take advantage of breezes. Site planning can be concentrated on the other factors of view, sun, privacy.

▶ *Bedrooms without cross ventilation*—two exposures, one of the first things most buyers and mortgage lenders insist on, are no longer absolutely necessary. In the future, architects and merchant builders

will be free to use blank walls or place bedrooms in line, saving the cost of windows and extra walls used when rooms are offset. Bedrooms no longer *have* to be on the southeast corner.

► *Cheaper windows, fewer of them*—with fixed glass replacing the normal double-hung casement or sliding sash on most of window areas, it is possible to reduce or completely eliminate movable sash, weather stripping, insect screens, storm windows and all the more costly equipment connected with conventional fenestration. (Note on winter heating: comparing his bills with his neighbor's, the owner of this Dallas house figures fixed double glazing saves him \$20 a month on his winter gas bills.)

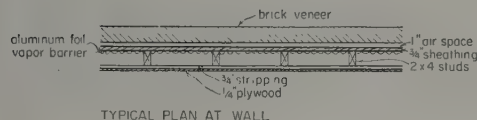
► *Heating and cooling in one package*—with some air conditioning units, there is no need for separate furnace or heating ducts. Separate dehumidifiers, attic blower fans, etc. are not necessary.

► *Inside baths*—baths can be relegated to the interior, air conditioned and vented with exhaust fans, leaving the more desirable perimeter of the house free for living and sleeping areas.

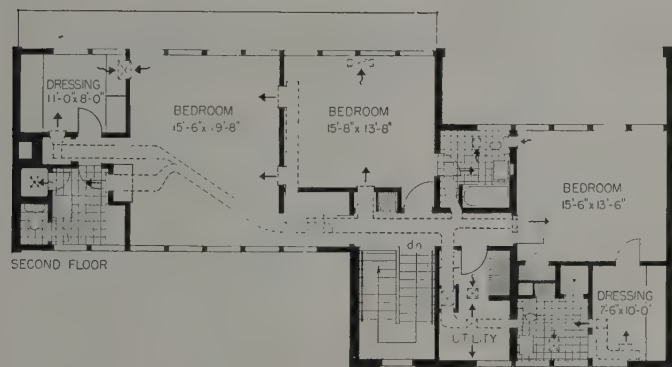
► *Owner comforts*—in addition to year round filtered air at comfortable temperature and humidity, owners can have *lower cleaning and repainting bills* for interior walls and household fabrics, and a *quieter house*, sealed off from street noises and other disturbances.



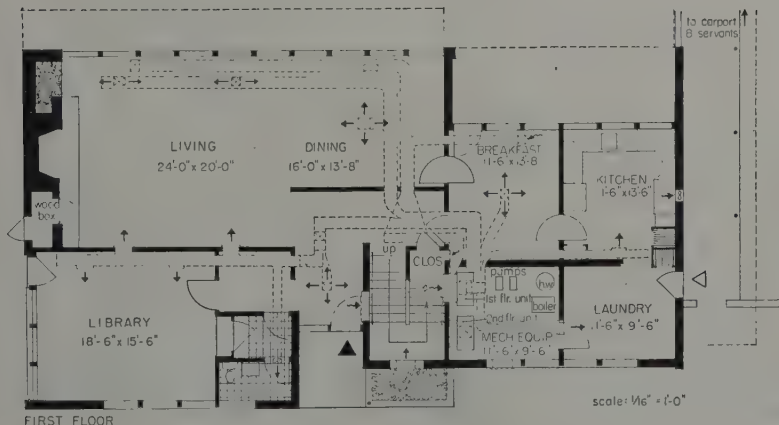
Ground floor machine room: separate 5- and 3-ton cooling units and water pumps for each floor.



TYPICAL PLAN AT WALL



SECOND FLOOR



FIRST FLOOR

**AIR CONDITIONING SYSTEM** (see floor plans): Both the 5-ton unit for the first floor and the 3-ton unit are self-contained with their own hot-water coils and spray-type humidifiers. (Hot water for winter heating, and for summer reheating to secure relative humidity control, is supplied by a separate 80,000 Btu boiler a few feet away.)

Each unit is linked to its own condenser water pump which circulates water at 83° F. into the unit, out at 93° to a two-circuit cooling tower 60' away near carport-servants' building, and back into the unit at 83°. A low evaporative loss of 1 gal. per min. adds only \$4-\$5 to the monthly water bill.

At night the first floor unit is closed down and the second floor unit, with its independent systems of supply and return ducts, is used exclusively to cool the bedrooms.

To keep down heat transfer, noise, and operating costs the architects insulated heavily in: **WALLS:** A five-thickness outside wall, including 1" of dead air space between wood frame and brick veneer, aluminum reflective paper between the studs (see detail sketch).

**ROOF:** 4" mineral wool batts.

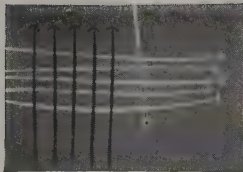
**DUCTS:** Galvanized steel supply ducts in the second floor ceiling were wrapped in 1" corkboard to prevent condensation and heat transfer from the warm attic. All supply ducts were lined inside with latex-coated glass fiber to prevent the mechanical noise of the 5- and 3-ton units from being distributed along with the cool air to all parts of the house. To insure quiet, the units themselves were mounted on 1/2" corkboard mats and linked to their supply ducts with vibration-absorbing canvas connectors (see photo).

**WINDOWS:** Fixed double glazing with dead air space between the panes keeps the house slightly cooler in summer, definitely warmer in winter. The owner figures that without this type of window, his heating-air conditioning plant would have to be twice its present size and capacity. **COST DATA:** the whole air conditioning plant including ductwork came to approximately \$1,000 per ton, or a total of \$8,000. With some 3,840 sq. ft. of floor space in the house, this meant 1 ton of air conditioning for each 480 sq. ft.

Operating the system boosts the house electricity bills \$50 per mo. in summer:

	Winter	Summer
Electricity	\$28 per mo.	\$78 per mo.
Gas	\$18 per mo.	\$ 8 per mo.





air conditioning

## Merchant builder survey

### IN THE NORTHEAST: Great activity in air conditioning

Next to Texas, one of the most active markets for residential air conditioning this spring has been in the area around New York City. No one could say that Stamford, Conn., Westchester County, suburban Long Island and northern New Jersey have particularly bad summer climates. If builders this far north are beginning to think about air conditioning, the trend has significance for builders everywhere in the USA.

About ten builders are either installing air conditioning now or have gone far enough to make commitments with manufacturers. In addition, there are numerous builders who are on the verge of ordering air conditioning. One national manufacturer reports his dealers have 50 prospects who are genuinely interested.

#### Failures and successes in LONG ISLAND

Just to keep the record straight, it may be well to report the failures first. Last year, builder HOWARD BELL of Delworth Homes, of Long Island put up an air conditioned model and announced he would install a 1-ton cooling system in his \$12,000 houses for \$750 extra. He thought he had quite a sales attraction. In the months that followed he couldn't sell a single house with air conditioning. As a further slap to his pride, he couldn't even sell the model house until he removed the air conditioner. Air conditioning was clearly and pointedly an extra that his buyers didn't want.

This spring Castle Builders, a successful firm building in Babylon, opened a new group of houses at \$19,500 and up. Also offered was a larger split-level model with year round air conditioning at \$32,000. In the first four weeks, no buyers had turned up. One explanation was that it cost at least \$10,000 more than any other house in the neighborhood. Another is that no advertising was done. In either case, a more realistic test of air conditioning would have been to put it as an extra in the \$19,000 houses which were selling well.

DAVID STEIN is just putting a new group of \$12,990 houses on the market in Merrick, Long Island in which he will install a 2-ton cooling unit for \$750. His air conditioning contractor has not bought an as-

sembled unit but has purchased compressor, condenser, coils and other major parts from various sources and has assembled them. He is using an air cooled condenser.

Stein says, "I think air conditioning is as sure to come as night follows day. It's going to be the thing to have. I want to be the first in my price class to have it. Maybe I'll put it in houses at \$10,500."

Air conditioning equipment dealers on Long Island are optimistic over the future market. Everyone has half a dozen or more hot prospects who will be signing up in the next few months. Dealers believe that the entire market is turning in their favor and when Regulation X is lifted, there will be plenty of families who want houses in the \$14,000 to \$18,000 market who can afford air conditioning. One dealer says he is about to sign a builder for 50 houses in the \$12,000 price.

In Cutler & Greenspan's 133 house project at Merrick, a buyer of a \$24,000 house can have 3 tons of air conditioning for an extra \$1,100. In the first month the project was opened last spring 12 houses were sold and of these, nine buyers bought air conditioning.

If Regulation X is removed, the sales department believes it can sell the entire 133 houses in two week ends and that 50% of the buyers will want air conditioning.

Platnick Photos



Above: Stein's house on Long Island. Below it: air cooled compressor. Hot air exhausts to the outdoors through ducts which were added later.

## WESTCHESTER, air conditioned at a price

In Westchester County builder CHARLES NEWBERGH is well satisfied over the success that air conditioning has brought to the first of his 75 houses at \$40,000 up. This is the first group of air conditioned houses in the county. The 3-ton air conditioning unit is optional, but in the first nine houses (seven at over \$50,000) he sold in the opening three weeks, all buyers were willing to pay from \$1,800 to \$2,000 extra for it. Newbergh says that nine sales in that price class in three weeks is eminently satisfactory and he has "a hundred live prospects who are even better than the people I've already sold." He uses a Carrier unit.

When asked if air conditioning helped to sell his houses he replied, "I know very definitely that it has. I'm not here to push air conditioning, but I know from what the people have said that it has been important. It does represent an advance—something new. Any house without it will be obsolete in five years."

## GREENWICH and STAMFORD also in the luxury class

In Greenwich, Conn. the Hvass Construction Co. started work last month on 66 air conditioned houses that will sell for \$26,000. Equipped with 3-ton year round equipment, this installation is one of the largest of its kind in the Northeast. Gas air conditioning is installed in all houses and is not an optional "extra." Houses have three bedrooms, two baths and a basement playroom, contain about 2,100 sq. ft. in addition to an expansion attic. BALDWIN HVASS, head of the firm, formerly built houses at around \$50,000, but has just moved into the new market. He estimates his year round heating and cooling cost about \$3,000 installed.

Builder CAREY WELLINGTON has used more imagination in merchandising year round air conditioning than almost any other builder. In developing his new \$40,000-\$60,000 Wellington Park houses in the wooded country near Stamford he realized in that climate he had to sell his customers more than summer cooling. The fact that New Yorkers think of Connecticut as a cool spot in summer would put selling summer cooling almost in the class with selling electric fans to Eskimos.

But Wellington is a man of imagination. He sells year round clean air: less dust, less dirt. He sells better health: fewer colds, less pollen, less hay fever, less allergies. He sells health in a big way and to

give his buyers something extra he installs an ultra-violet antiseptic lamp in his return duct which he says "purifies the air—as in all hospital operating rooms." He also sells less odors—and he backs up that claim by using a deodorizer lamp in the return system. He sold one house to a customer whose wife had hay fever and he knows air conditioning has brought him several other buyers. Wellington's most famous buyer has been Ezio Pinza, who bought a \$58,000 house partly because of its location but largely because he decided the air conditioning would be better for his throat.

Wellington uses two sets of filters and promotes that idea as part of his sales talk. He tells women their rugs will last longer and that there will be far less cleaning to do. He talks up the benefits of dehumidification, saying that window curtains won't sag in damp weather, that clothing hanging in closets will stay pressed longer. To dramatize the fact that he has year round conditioning and that the summer operation is different from winter, he installs two MHW thermostats and two humidostats and labels one pair "summer" and the other "winter." To parents of small children, he says his customers have already found that children have fewer colds because of proper winter humidification. In short, here is a builder who realizes that he has a real sales tool and that there are many plus values in air conditioning besides cooling.

In his new project he has completed nine houses, has space for 55. He installs a 3-ton unit and divides his houses into two zones for cooling. As he does not have city water, he has to sink a well for each house and he uses well water (throwing it away afterwards) to cool his condenser. He estimates that the cooling unit, the larger ducts and the larger fan cost him \$1,800 more installed than if he put in only heating.

He is a great believer in the value of insulation. He puts 4" of loose bats on the attic floor and uses aluminum foil on the top side of his ceilings. Under the shingles or wood siding of his walls he uses an insulation board, adds 2" of mineral wool insulation in the stud space and an insulating plaster. To his customers he talks of "triple insulation" and claims they will save enough fuel in winter to pay for the summer air conditioning. He uses double glazing throughout.

He conducted a highly interesting experiment last year in a group of \$12,000 houses. He offered a 1-ton, two-zone system for

\$1,000. He sold 52 houses but not a single air conditioner. No one would pay that much extra.

Last year in New Haven, Conn. FRANK RABINO & SONS offered 3-ton gas air conditioning units as optional equipment in their \$23,000-\$24,000 houses at around \$2,000 more than heating. Eight of 14 families took the air conditioning.



*One of several models built by Frank Rabino & Sons of New Haven, Conn.*

## Experiments in NEW JERSEY

In West Orange, N. J., builder Ed SCHWARTZ is carrying on an experiment in low cost air conditioning which should be watched closely by other builders. In his \$16,300 to \$19,200 houses he adds a 1-ton unit for \$450 extra. Of the 45 houses built or under construction he has sold 39. All but one buyer wanted the air conditioning. Houses are from 1,100 to 1,220 sq. ft.

"Since air conditioning was offered me for only \$450, I went for it" says Schwartz. "It's worth \$450 as a sales feature. I can't say it is the one thing that is selling my houses, as I have a lot of other good sales points. But obviously, people will pay that much for it."

The air conditioning unit is of highboy shape, and sits beside a gas-fired warm air furnace. The cooling unit is hooked into the duct system through a plenum just above the heater. Larger ducts were not added to take care of cooling. Families who used the equipment last summer say it does "only a fair job" of cooling. When the outside temperature was 90° it was possible to reduce inside temperature to 80°. By closing bedroom registers during the day the living portion of the house is cooled, and at night the reverse is done. In particularly humid weather the unit take 2 hrs. to become effective but in normal summer weather it takes hold more quickly.

Electrical operating costs are very low. One family reported a bill of only \$7.60 for July and August, which included electric lights but no heating, as the kitchen has a gas stove. Water bills are not known



yet as water meters were not connected during the past summer.

Most recent New Jersey builder to use air conditioning is JAMES D'AGOSTINO of Teaneck who is erecting 100 houses selling for \$22,000 to \$29,000. He is using 2-ton equipment with a matched GE gas-fired furnace of 125,000 Btu capacity. His houses



Operational costs for D'Agostino's air conditioning are \$60 to \$80 for four months.

have 1,600 sq. ft. (see photo) plus garage and basement, where the cooling and heating equipment is located.

B. J. BERGTON, sales agent for the project, thinks that the widespread use of air conditioning in office buildings makes people want the same comfort at home. "In five years," Bergton said, "air conditioning will be just as important to the luxury house as insulation is today. It means less dusting, less irritating pollen and also less air-borne sickness. Put all these together and you have a potent sales argument that will cause people to demand air conditioning as a means of adding a value and enjoyment to their homes."

The development has just opened and it is too early to report how sales are going.

HARRY RAPPAPORT, air conditioning sales manager at a Newark, N. J. firm, says he

has six builder prospects who are hot and two who "are very very hot. We are sure of getting this business." He is confident in the near future he will sell some 200 to 300 units. One group will be in the \$24,000 to \$27,000 class, another around \$20,000 and a third at \$18,000. He says the total cooling and heating of these houses will run around \$2,500, of which from \$1,000 to \$1,200 will be for the cooling.

Builder LEO ROUGHGARDEN has done half a dozen air conditioned houses at over \$25,000 for custom buyers at Fairlawn, N. J. As word spreads throughout an area that the higher priced houses have air conditioning, builders are more anxious to include it in their projects.

#### PHILADELPHIA reports air conditioning makes sales

Builder MAX CHIPIN has air conditioned more than 60 houses in the \$17,000-\$24,000 class in Philadelphia. "It was very successful," he reports, "and we'd put them in all our houses if the cost of labor and materials weren't so high. We know now that central cooling systems, like television, are no longer luxuries. They're on their way to becoming necessities."

Chipin added a 2-ton cooling unit for an extra \$1,500 to his 2,000 sq. ft. houses. The system was not zoned but buyers were told to shut off bedroom dampers in the daytime. The equipment has been popular with his customers for the past two years. "We wanted something no one else had," says the builder, "and we found this was a real sales inducement."

Another Philadelphia firm, LUPOWITZ &

SONS, is now putting air conditioning in 31 houses that sell for around \$24,000. The firm's reason for adding summer cooling: "Other builders are doing it." The cooling equipment costs about \$1,500 extra. An unusual feature of the design is that winter air moves one way through the ducts and summer air the other way. Thus the winter supply ducts become the summer return ducts. (A diagram is shown on page 000.)

Builder MORTON DRATCH used a 3-ton unit in his \$15,500 houses, the cooling being optional at \$1,200 extra. Dratch is enthusiastic about cooling as a sales magnet: as word of it got round, hundreds of prospects came to see his model house. In the first 42 houses he built, however, only eight families wanted air conditioning. After more than two years of use, Dratch says the equipment is working even better than the manufacturer promised.

The only Philadelphia builder unhappy over his experience with air conditioning is CARL METZ. He planned to air condition 62 houses at around \$20,000. But his first buyer claimed the houses couldn't be heated in winter or cooled in summer. The builder blamed the equipment, the dealer said the fault lay with inadequate construction. In any case, only 13 houses were air conditioned and Metz "wouldn't touch it again with a ten-foot pole."

A new group of 68 houses at \$12,000 is just now being signed up by one of Philadelphia's large air conditioning dealers. The builder's name will not be released until the order is signed, but when these houses are started they will compose the largest air conditioned group in that area.

## MIDDLE WEST

### "We're coming to it in CINCINNATI"

In Cincinnati builder ROBERT WACHENDORF is a one-man exponent of residential air conditioning. He has installed central equipment in 18 houses. True he builds in a range between \$35,000 and \$55,000 that bears little relationship to the mass market. But experience in the Southwest has shown that when ideas get started in the luxury field they are often taken up by merchant builders in lower priced houses. In the next five years Wachendorf expects to build 75 more air conditioned houses. "It's a luxury now, but it's coming to cheaper homes," he is sure.

ARTHUR RADTKE, an air conditioning dealer, says without qualification: "Air

conditioning for houses is going to be a terrific business. Within five years it will take such a hold that even lower cost homes won't be complete without central cooling systems. Cincinnati is right square in the pollen belt. I don't think it will be much trouble to convince people that for \$600 to \$1,000 more than they'd pay otherwise they can get cooling as well as heating out of their central system."

#### KANSAS CITY factory-built houses with air conditioning

In Kansas City there have been many installations in the larger houses. While no speculative builder has used air conditioning, the building industry feels it is just

around the corner. "There is nothing wrong with air conditioning in Kansas City that a good hot summer won't cure," said CLYDE NICHOLS, a Chrysler distributor. "Four or five cool summers have made people forget how hot it can get here."

Wadsworth Homes, assemblers of factory-built houses, is beginning an experiment this summer that will be watched carefully. The firm has teamed up with Carrier to offer air conditioned houses to builders. Both BRUCE and L. D. WADSWORTH installed year round air conditioning in their own new houses last fall and liked the equipment so well they decided to offer air conditioned houses as part of their line. A builder buying any of their many models can now include air conditioning, bought

C. L. Wilborn



*This large air conditioned house is a regular part of the Wadsworth factory-built line.*

and installed through his local dealers.

Three exhibition models, advertised as "Wadsworth Weathermaker Homes," are being built in Kansas City this summer.

### **WICHITA finds low cost of heating hurts air conditioning**

The cause of air conditioning has been hurt in Wichita because there are so many sheet-

metal shops that builders get low prices. "Heating costs from 20 to 50% less than in other cities," said KEN STOWELL, current local president of NAHB. The big market here is between \$8,500 and \$12,000, with most at \$10,000. People are used to getting their heating so cheap that the whole heating and cooling equipment would have to be at \$1,000 or less in this price range."

### **Not much cooling in DES MOINES, MINNEAPOLIS and CHICAGO**

In Des Moines there are probably less than 15 houses with a central cooling system. WALTER GILBERT, a leading builder of expensive houses said, "If we should have a hot summer, there will be a lot of immediate interest in central cooling systems."

Most of the interest, he thought, would be in a unit that could be attached to the furnace for around \$1,000. However Gilbert does not expect cooling to be much of a factor in homebuilding.

In Minneapolis, two installation firms put in 14 central systems last year. But a lot of window coolers were bought. The weather gets hot, but hot spells don't last very long. One furnace man reported what holds down the sale of central cooling systems as (1) the weather and (2) the lack of any real sales effort.

In Chicago, no merchant builders have used air conditioning and it is rarely found in large houses. A spokesman for Park Forest said it "wouldn't be reasonable" to install air conditioning because "it would add too much to our costs."

## **IN THE SOUTH**

### **CAMDEN, S. C. citizens are interested**

Room coolers are being used in the huge Lynwood project outside Camden, S.C. A 1-ton console-type room cooler sits on the floor of a specially designed closet between two bedrooms. Cold air is blown through a high grille into each room.



*Model house in the Lynwood project. It has a Remington cooling unit, about \$750 installed.*

All models have about 1,000 sq. ft. of floor space, have three bedrooms on the ground floor, or two bedrooms there and one in the expansion attic with provision for a fourth. Houses sell at \$11,775. They have warm water radiant heat in the slab, provided by a compact York-Shipley boiler in the kitchen. A washing machine, electric stove and refrigerator are furnished. The houses, designed by New York architect IRVING M. FENICHEL, have not been on the market long enough so that the Atlantic Building Corp. can predict sales.

### **In RICHMOND, MEMPHIS, ATLANTA and MIAMI it remains to be seen**

Builder MARK BANE in Richmond, Va. says, "Air conditioning may be the coming

thing," but neither he nor any other builder is putting such units in their present houses. Almost no existing houses have central cooling, although many have window coolers.

In Memphis the situation is about the same. Even luxury-house builders do not include central systems. The attic fan is counted on to do the cooling job.

Atlanta has about 800 apartment units that are air conditioned and an estimated 50 residences. There are thousands of Atlanta homes, including new ones costing over \$20,000, that have attic fans. But no one has pushed central cooling systems for private homes. Said ROY WARREN, merchant builder and real estate man, "Not a single builder I know of is putting cooling systems in. The costs are prohibitive; they are all out of line."

B. A. MARTIN, another leading merchant builder says: "I have considered it but I would not put it in a house for sale now. A lot of people might not like it. It makes a house a little more expensive."

Birmingham comes as a surprise to a census taker on air conditioning. No one knows how many houses have a central cooling system, but the best estimate is probably less than a dozen. Only two apartment buildings, Town House and Essex House, are centrally conditioned. Each has 136 units.

In Miami very few central cooling systems have been installed in residences or apartment houses. R. B. ROBERTS JR., vice president of the Florida Power and Light

Co., says, "They're few and far between and we have no record of them. There are thousands of room coolers in operation here. Nearly all of the newer hotels, apartments and commercial buildings are air conditioned but not homes."



*Hundreds of apartment houses and hotels in Florida use built-in window coolers.*

### **In LOUISIANA, a trend**

Two power companies serving New Orleans report there are about 1,400 "central cooling units," both gas and electric, but this figure includes residences and apartments. The big ceiling fan is still the standby. Another power company that serves about two-thirds of all rural Louisiana reports it has about 50 customers using a central electric cooling system and about 60 using a gas system. However, ROBERT NORMAN, partner in the Aurora Development Co., notes a trend towards having houses in the \$18,000 and up brackets built with facilities for future installation of central systems. "I think all of them will come to it sooner or later."



Builder A. K. AMMEN in Alexandria, La. has just started building the first of 200 houses priced from \$8,000 to \$13,600. He puts a 1-ton conditioner in a two-bedroom house and a 2-ton model in three-bedroom houses. The air conditioning unit, placed in the closet between two bedrooms, has a damper to divert cooling to the living room. Wall heaters are installed which are com-

pletely separate from the cooling system.

The builder pays \$265 for the 1-ton unit but total installation cost runs to about \$500 for the single unit and \$950 for the two units. Estimated operating costs are \$17 per month during the warmest weather when the compressor would run 14 hours per day. Ammen says he wanted air conditioning to give him a sales ad-



York Corp.

Builders have found that an "Air Conditioned" sign helps to sell houses rapidly.

vantage over his competition. He is sure the units will work as he put seven in his own home. A local banker handling the financing believes the houses will sell faster than non-air conditioned houses.

## THE SOUTHWEST

### In west Texas, Dick Hughes leads the fight

No builder has fought more determinedly for air conditioning than Dick Hughes. At this magazine's recent round table he said: "For the past four years I have been personally exploring the possibility of building homes for the low income group with both winter and summer air conditioning.

"I talked to every air conditioning company with whom I have done business urging them to assist me. But I made very little progress.

"Last summer the heat was unusually intense in the Southwest and I renewed my efforts but I could find only one firm interested in my program until the first "Operation Trade Secrets" meeting. There I said: 'In five years—even the very small homes will be completely obsolete unless they have winter and summer air conditioning.' The trade magazines picked up the quotation and after that I began to make progress. We now have our first completely air conditioned unit in operation in a house which I will be able to sell for \$10,500.

"Homebuilders all over the Southwest contact me daily wanting to know what progress I am making on my air conditioning unit.

"My primary interest in air conditioning stems from four major facts:

1. It gets hot in west Texas.
2. The wind is constantly blowing and it carries a lot of dust.
3. Eighty-five per cent of all the carbon black of the world is manufactured in west Texas. As a result the air around the towns in which I build is constantly filled with smoke.
4. The doctors report an increasing amount of sinus trouble because of the dryness of the air.

"Air conditioning becomes essential if

we are going to provide small homes for comfortable living.

"Air conditioning will, according to physicians with whom I have talked, improve people's health by allowing them to live in and breathe air that has been properly humidified.

"I have talked to homebuilders in practically every part of this country—I have discussed the matter with the FHA and VA and it is my opinion that proper air conditioning is needed in the small homes

worse than any other item at this time. Builders and the public recognize that fact and FHA and VA officials are extremely anxious to co-operate.

"When I contacted FHA and VA they were intensely interested but it is obvious that people in the low-income group will not be able to pay large water bills. The successful small home unit must be manufactured so that water will not be wasted. The FHA's first objection was the fact that water bills in Texas would amount to \$25 to \$30 per month and therefore low income people could not qualify.

"The conservation of space is also important. The unit should be small and located in the center of the house to conserve ductwork.

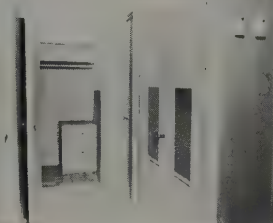
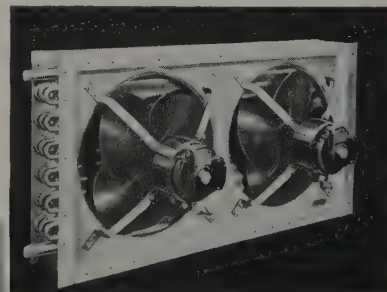
"The same ducts should carry both hot and cold air and the longest duct should be only 7' or 8'.

"This unit should be cheap enough so that the entire cost can be put in the mortgage and amortized at not more than \$10 per month. The operating cost must be lower than \$5 per month. When these items are accomplished air conditioning can and will be installed in the majority of the small homes of America."

The photo, at left below, shows one of the four air conditioned models Hughes is building now at his home base in Pampa.



Above is the first of four new air conditioned models Dick Hughes is putting on sale. Right: two doors lead to equipment room. Far right: air cooled condenser installed in the attic.



Hughes is putting up a group of about a dozen houses to serve as pilot models for a big future program.

His two-bedroom houses will sell for either \$10,500 or \$11,500 and the three-bedroom models for \$12,000 or \$13,000, depending on how much special equipment

they contain. Hughes estimates that heating and cooling of the three-bedroom models costs a total of \$1,500, including 3 tons of cooling and a 150,000 Btu heater. In the future two-bedroom houses he will use a 2-ton compressor.

To get away from the operational cost

of water, he is using an air cooled compressor located in the attic. Hughes is attacking the problem of operational costs with more aggressiveness than any other builder and what he discovers will be watched with great interest by both builders and manufacturers.

## AUSTIN air conditioning is still a luxury

In Austin there are many air conditioned houses but nearly all are more than \$20,000. But Mr. H. E. CAMERON, an air conditioning dealer, says he is about to install some 3-ton units for two different builders in three-bedroom houses selling for around \$12,500. The houses will have a minimum of ductwork as the hall will be furred down for a plenum and short ducts will run into each room.

Cameron has made some interesting installations of an induced draft water tower in the garage, drawing air from the attic through the cooling tower. This lowers the temperature in the attic and raises the temperature of the pan water only  $\frac{1}{2}^{\circ}$  as compared with using air not drawn through the attic. He hopes very soon to be able to supply a 3-ton unit to builders, installed with heating, for around \$1,500.

## PHOENIX, TUCSON, ALBUQUERQUE and EL PASO are on the bandwagon

While Houston and Dallas may boast of the total number of air conditioned homes and business places, it might be that an actual count would show that for its size Phoe-

nix, Ariz. should win the national prize. Estimates are that 75% of the 42,200 dwelling units have some kind of duct cooling. About 30,000 houses have evaporative coolers; about 1,500 have refrigerated coolers, of which 800 were installed in the last two years. This year 400 or 500 will be installed. Based on past growth, within five years 800 to 1,000 central refrigerated units will be installed annually.

Local observers feel that most houses costing \$20,000 and over will have mechanical cooling systems, and that as soon as equipment prices go down, there will be a boom on in the less expensive house market. Many older houses are now being converted to refrigerated cooling. There is a water problem so when air cooled units are developed, they will increase the size of the market. It is highly significant that all houses built in Phoenix since the war have ducts installed for cooling. Even \$7,000 houses are prepared for an evaporative cooler, but the buyer always adds the cooler after he moves in.

In Tucson there are actually more coolers than there are houses. A. R. SEAMAN, Power Co. official, estimates there are 105% coolers—as many houses or business firms have more than one. Some stores or

churches may have eight to 12. In the past few years practically all new houses have had built-in duct systems for evaporative coolers. Mechanical cooling units are used primarily in business places.

Albuquerque is as high as Denver and most residential cooling needs are met by window units. The best estimate is that less than 5% of houses have a central cooling system and these are in houses of over \$25,000. Builders report a number of new houses in the \$15,000 and up class that have provisions for central cooling but installation is left to the future.

El Paso is high and dry and is an ideal climate for evaporative coolers. Virtually every home has one. It is easy to find the poorest kind of adobe shacks with evaporative coolers on the roofs. Probably less than 1% of houses have a central mechanical cooling system and these houses cost \$50,000 or more.

Joey Starr



Evaporative cooling units on the roof of a Phoenix house

## IN THE WEST

### CALIFORNIA is trading evaporative coolers for refrigeration

Visitors to the Golden West may have the feeling that the climate's fine—never too hot, never too cold. But it is a great place for air conditioning, anyway, judging by figures. Servel alone has 522 residential air conditioners in the greater Los Angeles territory, 190 more in San Francisco and nearly 500 in the rest of the state. With the natural gas rates low, Servel's gas burning equipment got the jump on other units.

A California firm making evaporative coolers, Utility Appliance Co., claims it is the country's largest and that it sells about 17,000 coolers yearly in Los Angeles county alone. The firm makes 35,000 to 40,000 an-

nually and officials estimate that about 750,000 evaporative coolers are in use west of the Rockies and in Texas.

One of the summer hot spots of the state is Fresno where nearly every house has home cooling. Builder BRUCE YOUNGER estimates that 95% of houses use evaporative units. Of the 100 houses he has built with summer cooling, only 10% were refrigerated units, for his more expensive houses. He believes this type is on the increase now because of the growing humidity due to irrigation. He reports that when he advertises "Cooled by refrigeration" his inquiries are doubled.

Builders TAYLOR & WHEELER of Fresno estimate they have installed at least 84

refrigeration units and more than 100 evaporative coolers in new residences in the past 15 years. The price range of houses with evaporative units is from \$7,000 to \$20,000, and from \$15,000 up with refrigeration units. They have used practically all makes of equipment, including a heat pump. People there don't have to be sold on air conditioning, they report.

In Sacramento's 80,000 homes it is estimated that less than 10% have evaporative coolers. There are about 300 central mechanical cooling systems. In the more expensive new houses there is a trend to central systems. Bakersfield, 200 miles further south, is like Fresno: really air conditioning minded.



# What do builders want . . .

## A round table discussion on residential air conditioning

### P. I. Prentice:

*Editor and Publisher, MAGAZINE OF BUILDING*

**We have invited you here today because we believe that residential air conditioning may well be something of tremendous importance and value to the volume homebuilders. We also believe the 20,000 volume homebuilders, who erected something like 83% of all the professionally built houses in the US, can be very important to the air conditioning industry.**

If I may quote Manny Spiegel, who speaks with the authority of being first vice president of NAHB, **"We all hope that air conditioning is going to be the next big thing in homebuilding, but it won't be unless a great many changes are made."**

Some of those changes will have to be made by the manufacturers, who will certainly wish to study the volume builders' needs with an eye to fitting their product to what the builders want. But some of those changes are up to the builders and their architects, who must get a better understanding of what air conditioning can do for them and what they can do for air conditioning. And some of the changes must come in the thinking of the mortgage lenders.

This is the first time there has been a get-together like this between top factors in the manufacturing of air conditioning equipment, top financial people, designers, NAHB representatives and builders who have already put air conditioning into volume-built and quite low cost houses. You can learn from them firsthand what was good about it and what was bad about it, what came off right and what came off wrong, and profit by their experience.



Photos: Roy Stevens

### Irwin Jalonack: *Chief mechanical engineer of Levitt & Sons*

A builder looking for a volume market has a basic problem. He has to have a house priced low enough so he can sell a lot of them, and he has to get as much possible appeal as he can into the house.

You have all seen the old sales triangle. Every time you raise the price of the house \$100 or \$500, you eliminate some prospective purchasers.

No one can dispute the fact that if you can air condition a house, it lends a great deal of appeal to it. What would the builder like? He would like to have the air conditioning, and he would like to get it for nothing.

Now, before somebody accuses me of undermining the basic economy of the country, I don't mean that we won't pay for it. We will pay the manufacturer for it, but let me highlight for a minute what I am talking about when I say the builder would like it for nothing.

We put full insulation in our house, and we use double-glazed windows. We consider this costs us zero because if we didn't do it, we would have to put that much money into the heating plant and the distribution system. So we have this insulation and the double glass, both highly desirable features, and they cost nothing.

We use a paint that by ordinary standards costs three times as much as what you would think. It is probably the most durable and washable paint that is made, a wonderful product, yet, because we apply it by spraying, and because we don't have to come back and use a separate paint to trim over the wood (as this covers wood, plaster, plasterboard and everything else) it doesn't cost us anything.

A few years ago, we were going to put in a laundry tray. When we figured the cost of the laundry tray, the additional cost of the cesspool, extra depth and plumbing involved, we found we could provide an automatic washer for nothing, so we did.

All these things are highly desirable. But air conditioning is the manufacturer's problem because the builder's desire to get this stuff is at zero cost to himself.

You have to put a heating plant into a building. It is conceivable that the air conditioning can be so combined with the heating plant that it costs nothing.

Well, we might be able to compromise. We might be able to pay a little more, \$10 or something. (Laughter.) To be big, we might raise it to \$11. But this business of \$1,000 is out.

There are other costs besides the cost of the equipment which the builder is faced with. There is the space problem. Space costs money. If any of



Representatives of the building and air conditioning industry were invited to New York City on April 10. A list of men attending is at the end of this article.

you have seen our houses in Levittown, you know that we don't have a utility room. As far as our heating plant is concerned, we dedicate a space in the kitchen that is 25" deep, 30" wide and 36" high. That is our heating plant. (For photo see page 120.)

The virtue of having the plant there is that you have the whole kitchen for accessibility to it. If you put it in a utility room, in addition to the space the equipment takes, you have to provide space for getting at it. This is more or less lost and wasted space, so you can't just lightly design an air conditioner and say the equipment has cost so much, and not remember that it cost the builder something to provide that room. While floor space is most important, even the height is of some value. In the case of this 36" high unit we use, the top of it is a work surface. It is a stainless steel top, and it is right near the stove and is used all the time.

The manufacturer has got to turn his wits to get this thing developed, so that he combines heating and cooling, so that the cost of the cooling equipment is the same or very, very little more than what the cost of the heating would have to be, and that is the goal. The goal is zero. I didn't ask that the combination be cheaper. (Laughter.) We are very conservative. We don't want to alarm you, but it has got to be close. It can't be \$400 or \$500 or \$600 above it.

This year we are selling some 4,000 or 5,000 houses. If our volume was 2,500 houses, everything else being the same, we actually would lose money; there isn't any question about it. We have to predicate our whole position on selling a lot.

Up to this time, no air conditioning manufacturer that I know of has seen that the hen came before the egg, so to speak. They have looked at what the market is, and then they have set their price accordingly. Nobody has been willing to say, "Well, we would sell this for about a third if we could get ten times the volume."

If you could put in an air conditioner in a house for no more cost, I think that anybody would take it. Nobody would say, "Just leave out the air conditioning because I don't like it; my cat is allergic to it." If it costs zero you have an unlimited horizon.

Well, you can't all have it, but whoever gets there first will get the market, and it will be a very profitable one.

That, briefly, is what we want. In other words, what does the builder want? The builder wants it for nothing. You asked me, and that is why I told you. (Laughter and applause.)

## Harry Madway:

*President of Home Builders Assn. of Philadelphia*

As a builder, I think the air conditioning industry has a job to do in solving certain problems. They have to determine whether they can get away from a water cooled job and do the job properly air cooled. In many areas of the country, if you are compelled to use a water cooled air conditioning system, you are going to run into trouble where you have high-cost water or limited waste disposal facilities.

Most people are too ready to accept the idea that it is most economical to combine your heating and your cooling. It is conceivable that it might be a lot cheaper to keep them entirely separate. In the type of perimeter warm air heating system that we use, the cost of modifying it so that it will operate efficiently for cooling would make the whole system impractical. I think, too, you have to do some thinking about the kind of wiring load that you might be imposing. Many are wired for 110 v. current, and we have got to think of an inexpensive prewired system, too, if we are going to use air conditioning.

Mr. Jalonack raised the question of space. Perhaps in slab houses we can use the attic in some fashion, and then, you also have to consider the flat roof houses.

There seems to be room for an industry research program similar to that which resulted in the perimeter warm air system.

## Emanuel Spiegel:

*First vice president of NARH*

As builders, I wonder if we should be discussing details of the type of unit, or whether it should be air or water cooled.

I agree that there are many problems. I think that what it boils down to is that instead of building Cadillacs, you fellows in the industry are going to have to build Fords. I think somewhere in this room, one of these manufacturers is going to be the Henry Ford of the air conditioning industry, and when you get to the point where you have designed a unit at a price that we can afford, we will use it.

It will have to be as practical as the very devil, because, considering Mr. Jalonack's problem—and it is the same with all of us—space costs money, and every inch of space that we have to give up to an air conditioning unit, we are going to have to add to the cost of the house. Air conditioning is the next big step, and you fellows are going to have to do the research, you are going to have to dig up the method. You must be designing it and having a lot of research done in your own laboratories right now.

*Builder Dick Hughes's remarks are on page 100.*



# ... and manufacturers promise?

## F. J. Van Poppelen:

*General manager of Air Conditioning Dept., GE*

There is no doubt that the lower the price, the more we will move. But I think we have another big job as manufacturers to do, and that is to create a demand. The public will spend money for expensive things like automobiles. People are perfectly willing to spend for something they think is necessary or good for their health and comfort. When we sell the idea to the homeowner that air conditioning is something more than a luxury, that it is a necessity, that it serves a real purpose, it will be easier for the builder to charge a little more for his house and sell it, too.



## O. W. Bynum: *Exec. vice president of Carrier*

We certainly have a new objective on this "\$11 system" and I am going to go back home and work on it pretty hard. It is interesting that the consensus of this meeting is that we have a terrifically big market. I agree that an air conditioning market in residential work has been building up now over a period of some 15 to 20 years, and it is just beginning to snowball.

The point has been made that air conditioning is important besides the summer cooling. I think that summer cooling is merely the sensational side of air conditioning. We have a considerable job to do in educating people on the year round benefits. In my home, I get more benefit from air conditioning in the winter than I would get from summer cooling.

There is a possibility of doing residential air conditioning some damage if we are not careful about the applications and type of equipment we put in. If we don't get capacities and applications right, and if we don't provide for good service, we can kill the goose before it starts laying eggs. It has been the experience of most firms that they can be set back a long time unless the applications are properly made.



## J. R. Hertzler: *Vice president of York*

Any remarks that I would make I would like to classify under two subjects. First, we can dream, can't we? Second, who is going to create the demand for residential air conditioning, year round air conditioning, that will make it a commodity?

Carl Boester has some ideas (see page 106) we can dream about. They stimulate our thinking.

Last week, I had the privilege of inspecting the new Armstrong Cork Co. Research Laboratory at Lancaster, which is a marvelous installation. I saw tests being conducted using insulation in such forms that you can eliminate the wall, and then a little further dreaming (and a little further thinking, takes the air conditioning engineer over into the field of dreaming) where we might like to conceive of an air conditioned outdoors which would permit of the elimination of a building, or possibly of all buildings.

## Howard L. Spindler:

*Director of public relations, American Radiator & Standard Sanitary*

I think we have three parts to this problem. First there must be a product, then a market, and then you have to finance it.

When it comes to marketing, our problem is one of education, and that will be the job of the manufacturer, in conjunction with the publishers, in order to get that story to the people of our industry. The manufacturer will have to make that product to fit the home. He cannot expect the builder to build a home around our product.

This meeting has stimulated the thinking of all of us. We have got to do a lot of work at the manufacturing end before we can start the educational thing. I think there is a present demand, and I think that demand is bound to grow, regardless of any promotion on education. But we have got to have the product first and be sure that it is going to fit the builder's home.

## James N. Crawford:

*Vice president of Bryant*

The advantages of summer air conditioning need to be appreciated by the public. Even in this colder climate there are many advantages of summer air conditioning which we have not sold, and by "we" I mean the industry.

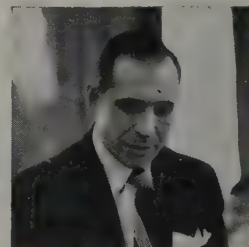
Sometimes I think we get so enamored with the subject ourselves that we forget that we have to sell it to the public. All of us have got to really roll up our sleeves and sell this idea of summer air conditioning and what it will do for the public before we can make a success of this business.

## Jack Kice: *of Coleman*

This month we begin deliveries of our first production model cooling units in 2- and 3-ton sizes to fit the residential market we have been discussing today.

Our entry into this field was predicated on the same analysis that prompted this meeting. . . . Air conditioning is growing up! It is now ready—or almost—to make its bid for the mass market—that magic situation that is so much responsible for the many wonderful things in America.

I'm sure that everyone here recognizes the problems in consumer education, product design, financing and all the others that must be handled as we steer air conditioning into the homes of America.



## J. A. Gilbreath:

*Ass't. vice president of Air Conditioning Div., Servel*

Installation and maintenance must be well done.

From a manufacturer's viewpoint, I know that residential air conditioning can be damaged a great deal unless it is carefully handled and applications are properly made and good service is provided. The manufacturers today, as a group, are work-

ing diligently in the direction of *lowering* the cost of equipment to the practical minimum consistent with good business practice.

The matter of establishing air conditioning values in the minds of the people who buy and occupy these homes is the most important job that we collectively have. It has been mentioned by practically everybody here, but the values of air conditioning are such that when they are known and understood, they justify some additional costs in a residence.



**A. B. Newton:** *Vice president of Acme*

People do not yet know what residential air conditioning is. That is a No. 1 problem, as well as financing. In most cases when it came to selling those houses, the general public had no conception of what air conditioning could do for them. That is a problem that everybody in the industry ought to tackle, builders and manufacturers alike.

We have a lot of educating to do in getting people to know how to live in an air conditioned house.

When my family first air conditioned our house, they had to open the windows every night. Eventually we kept our windows closed and our storm sash on all summer as well as all winter, and never put the screens on.

Three or four years ago, we moved to Jackson, Mich. where we are now. We went through one of the two summers during that period when we did not have air conditioning. The things that the family complained about I think were important and different.

I think of air conditioning with comfort and health as the important things. But those were not the important things to my wife. She objected to the fact that we had no air conditioning from the point of view of noise and dirt in the house; the fact that she had to open windows to keep cool was now an objection instead of something she had to do.

People just don't realize the unexpected advantages of air conditioning as well as comfort. So perhaps the thing we are talking about, such as leaving off screens, is coming in the future, but we have got to do a lot of educating before we get there.

## George Boeddener:

*Managing director of National Warm Air Heating & Air Conditioning Assn.*

It has been suggested that some research ought to be done on summer cooling tied in with year round research that has been done on warm air heating. I am glad to tell you that we have a research program on summer cooling which is about ready to go on. The equipment is already installed in a research house at the University of Illinois, and we will have a report this fall. In addition to that, we have our Mobile Field Laboratory which has made several investigations of houses that are equipped for year round air conditioning. They have made tests out in the field on heating and this summer we are going to make tests on the cooling. We hope some day soon to give you a report.

## Harry Steidle:

*Secretary of Prefabricated Home Mfrs. Institute*

I am neither an engineer nor a home-builder, but I am a secretary of the Prefabricated Home Mfrs. Institute. It has been the aim of prefabricators to deliver a house that is complete in all details. We have come up against many hazards, and we have not yet accomplished that aim but we are working well in that direction.

The emphasis today on volume-building ties in with the job of the prefabricator. He is the man who is doing it, and he started in the low cost field.

The trend now, as you will notice from the advertising in the pages of both editions of THE MAGAZINE OF BUILDING, is toward higher priced, better designed, and more completely engineered houses, all of which makes me believe that if you gentlemen can get air conditioning down in price, the prefabricator would be the ideal man through whom you could work.

Several firms are making houses that sell for \$25,000 and \$30,000. I am sure that air conditioning would be a welcome addition to those units.

## Lawrence Wadsworth:

*President of Wadsworth Homes*

We are comparatively small manufacturers of houses in Kansas City, but we are believers in the market for air conditioning. In fact, we have been associated with Carrier in their promotion. We are now showing air conditioned houses in our line, the Weather Master House. We have designed and will ship to our builders in Kansas City three different models of air conditioned homes for display purposes, to be available early this summer.

## Housing Consultant Carl Boester suggests wall coolers

I suggest that you reconsider the application of the room cooler to the problems of the homebuilder. I am thinking about the problems of air conditioning for the small home on the premise that the room cooler, as a device, is a good one—a good solution that technically and physically is acceptable.

Instead of tearing up the pea-patch by hanging your unit in the window and making it hard to get at in a lot of other ways, why not take the cavity of the wall as the space to do it?

If I were in your position, particularly with materials shortages, I would start out with a component part of the homebuilders' construction, the wall, and use that as a case for my equipment, constructed not out of metal but of wood.

I would take the same component parts that you have in your room cooler—your compressor, your evaporator, your condenser, your restrictor tube, or expansion valve, and the other little things that go with it—and just rearrange them to fit in the stud space.

I would provide the builder not with a metal cabinet but a wood container which becomes his wall. The 2 x 4" frame which you assemble your equipment into goes to him and he just sets it in line with the wall.

Then I take one space which is, roughly, 16" x 8', and add a little propeller fan at the top that blows the air out in the room. Down at the





### Carl Boester: *continued*

bottom I would put an opening with a grille in it, and then I would put my evaporator coil next to it. On the outside wall I would cut a hole for my propeller fan, put my condenser coil below, and cut a grille so that the air from the outside comes through the cavity space, through the blower and out, so I accomplish my condensing function.

Then I would go a step further. We are talking about the heat pump. I would use a pair of three-way valves, so that in the early spring and early fall you could reverse the cycle and make it an air-to-air heat pump.

Here in effect you have the basic element for heating and cooling right in the stud space. You are not requiring the builder to take any additional space. There are several electric resistance heating panels on the market. You could put booster heaters suspended from the ceiling controlled by thermostats, and apply the electric resistance heating on severe days to make up the difference on this heat pump cycle.

In addition to that, on winter heating, you can steal a page from Dr. Mills in Cincinnati and line the walls of your house so they have certain reflective aspects to them, so you reduce your heating load there.

When I came into the room I would turn on the heaters and when I left, I would cut them off.

It is my computation that the annual electric heating and cooling bill would be less than it would be on a combination of oil or gas, and with separate refrigeration for summer cooling.

This is all predicated on the assumption that you as businessmen take the position that the room cooler is a good idea. It is simply a suggestion. You may need to investigate the patent situation, because that is involved.

This combination of the air-to-air heat pump cycle, plus some resistance heating boosting, will mean that your first cost will be considerably less than what builders are now paying for air conditioning.

It is all self-contained. When the electrician is running his service line he provides for power requirement and controls. You have no water consumption or anything else. It seems to me it is not an item, as far as the homebuilder is concerned, that needs to go through the appliance dealer. It could go direct to the homebuilder, and there is nothing to keep the homebuilders from assembling units like this from parts that you manufacture. After all, we have wall furnaces; why not wall cooling?

*Subsequent to this round table and the challenge by some round table members, Carl Boester has built and now is testing such a unit as he proposed, with plans for limited availability of such units to homebuilders this year.*

### At the round table conference

#### Manufacturers

##### Acme

A. B. Newton

##### Airtemp

M. T. Bard

##### American Radiator & Standard Sanitary

Joseph Grazier, Howard L. Spindler, William Cooper

##### Brunner

F. C. Hawk

##### Bryant

James N. Crawford, R. T. Killian

##### Carrier

William Bynum, J. M. Bickel, William Lake, A. E. Meling, S. F. Shawhan

##### Coleman

Jack Kice

##### Fedders—Quigan

Frank Mitchell

##### Frigidaire

Wendell Smith

##### General Electric

F. J. Van Poppelen, H. M. Brundage, Harold Dunley, S. J. Levine

##### Majestic

George Boettinger

##### Philco

W. H. Eichelberger, John Cherry

##### Radio Corp. of America

William Carolan, Sam Conley

##### Remington

Fred Stidjole

##### Servel

J. A. Gilbreath

##### Westinghouse

J. C. Thompson, T. E. Smith

##### Williams Div. Eureka Williams

C. S. Stackpole, Andrew F. Ward

##### Worthington Pump & Machinery

M. M. Lawler, Charles Butcher, John Larramy

##### York

J. R. Hertzler, C. A. Barnes

#### Associations

##### American Gas

Carleton Wolf, managing director

##### Air Conditioning & Refrigeration Machinery

William Henderson, exec. vice president

##### Gas Appliance Manufacturers

Leigh Whitelaw, managing director

##### National Warm Air Heating & Air Conditioning

George Boeddener, Randall Nelson

##### Prefabricated Home Manufacturers' Institute

Harry Steidle, manager

#### Builders and Prefabricators

Emanuel Spiegel, first vice president, NAHB;

Richard Hughes, treas., NAHB;

Leonard Frank, exec. committee, NAHB;

Leonard Haeger, director of research, NAHB;

Lawrence Wadsworth, president, Wadsworth Homes Inc.;

Irwin Julonuck, chief mechanical engineer, Levitt & Sons;

Harry Madway, president, Home Builders Assn. of Philadelphia;

#### Mortgage lenders

Thomas E. Lovejoy, pres., Manhattan Life Insurance Co.;

Brown Whatley, first vice president, Mortgage Bankers of America, and p.

Stockton, Whatley, Davin & Co., Jacksonville, Fla.;

M. K. M. Murphy, past president, US Savings & Loan League, Rutherford,

John Austin, president, T. J. Bettes Mortgage Co., Houston, Tex.;

W. A. Clarke, president, Clarke Mortgage Co., Philadelphia, Pa.;

Allyn R. Cline, president, Cline Mortgage & Trust Co., Philadelphia,

Warren Hill, asst. exec. vice president, N. J. Savings & Loan League

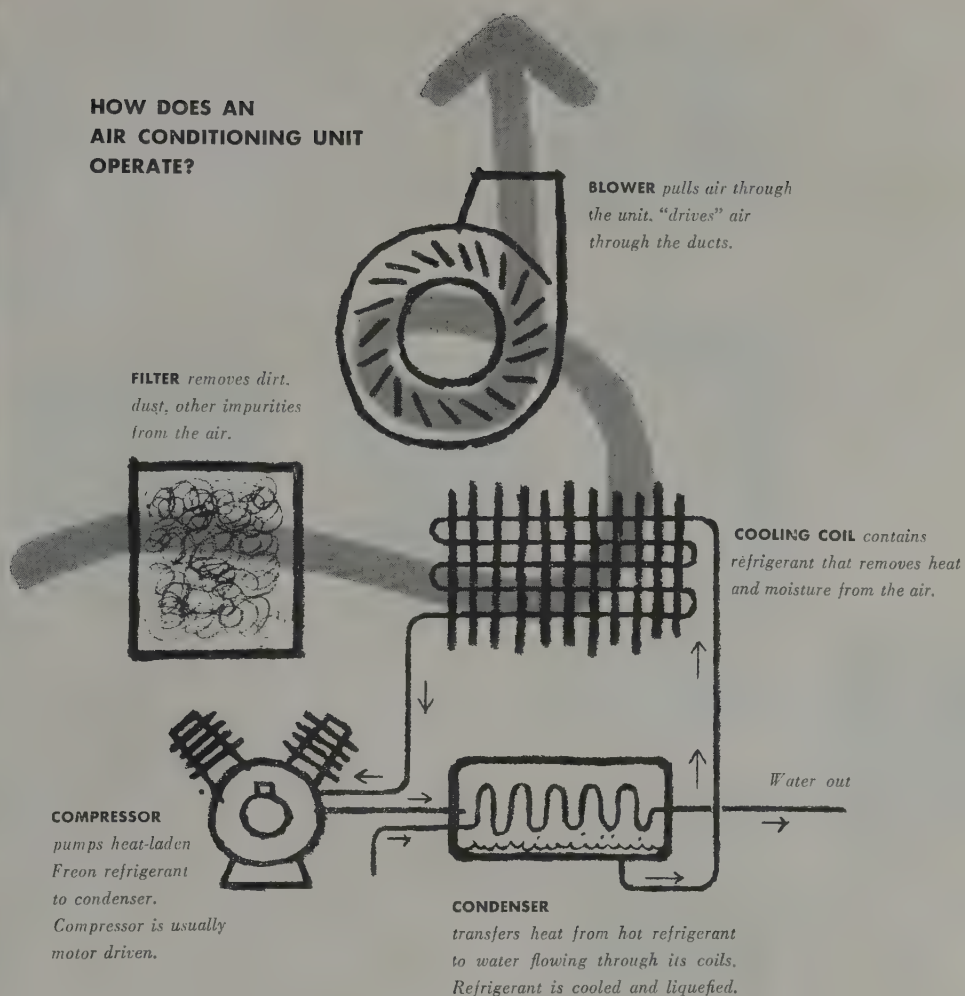
#### Others

Carl Boester, housing consultant, Purdue University;

Saul Fromkes, president, City Title Insurance Co., New York, N. Y.;

P. I. Prentice, editor & publisher, The Magazine of Building

## HOW DOES AN AIR CONDITIONING UNIT OPERATE?



Typical air conditioner, with machinery exposed, has a sealed compressor and motor in the lower section; condenser is at the rear. One filter is removed from in front of the angled cooling coil. Blower is at the top of the unit.

## What equipment is on the market?

### WHAT IS AIR CONDITIONING?

Air conditioning is probably the most misused term in the builders' vocabulary.

When a builder says, "I've got air conditioning," he may mean that he's done nothing but add moisture to his warm air heating system. He may mean basement air circulates through the house in summer, or that there is an evaporative cooler on the roof. But he does not have complete year round air conditioning unless his system:

1. Heats in winter
2. Cools in summer
3. Removes moisture from the air in summer and adds it in winter
4. Cleans the air by filtering it
5. Circulates air throughout the house, using some outside air constantly to freshen inside air.

### Here are the choices

#### available to a builder or architect

When a builder or architect shops for air conditioning equipment, he finds many makes of units, a variety of first costs and operating costs, and obvious advantages in every type of unit.

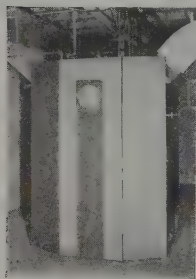
To help him over the first hurdles, a short description of the more common types of residential air conditioning units is given on the following pages, with information on cooling towers and equipment costs.

The rudimentary principles of air conditioning, illustrated in the drawing above, apply to window or room air conditioners, to all the commonly used mechanical units and even to the heat pump. They do not apply to evaporative coolers used in the dry regions of the country or to absorption refrigeration units that are powered by gas, oil or steam for cooling. The condenser in the drawing is water cooled, whereas the air cooled type of unit has a condenser coil that is open to the outdoor air, e.g., window models.

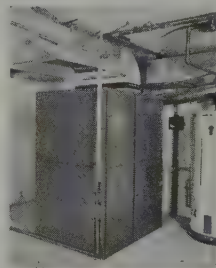




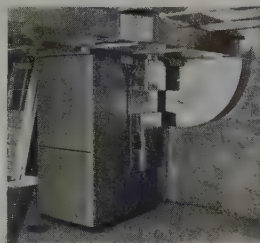
*Bryant's combination heater and cooler.*



*Servel's gas fired combination unit.*



*Carrier's unit includes gas heater.*



*Automatic Firing Corp. combination.*

## Heating and cooling equipment inside one jacket or shell

Since it combines heating and cooling in one the trade calls this a "combination unit."

One blower and one set of ducts handle both warm and cold air. The smaller combination units usually occupy less floor space than separate systems. Duct design may give a more efficient air flow and there may be shorter interconnecting ducts between heater and cooler than when air must travel through two separate units.

The system can be changed from winter to summer operation or back by a single switch. One thermostat controls indoor temperature the year round.

Combination units are manufactured by several firms (*see photographs at left and below*). One type uses either gas or oil for heating or cooling, the others are electric. All of these use a water cooled condenser, recirculating cooling water through a cooling tower or throwing it away.

## Separate cooling units

Separate cooling and heating units do not differ basically from combination units in design or method of operation.

Most manufacturers now building such equipment were in the heating business before they made air conditioners. It was logical to build or buy a cooler, matched in size with their heaters, which could be installed separately.

*The fact that a separate cooling unit can be added to almost any warm air heater or furnace means that any heater manufacturer using a central, warm air system with duct distribution can also offer summer cooling by matching his equipment with refrigerated coolers. The two units must be engineered to work together.*

Such equipment lets builders offer their house buyers a choice of taking air condi-

tioning with the house or adding it later.

To owners of existing houses, the separate cooling unit is a great asset. It can be put near the present heater and tied into existing ductwork (if there is space for the unit and if ducts are large enough).

Another phase of flexibility is that the separate unit may possibly take less floor space than the combination equipment, as the cooling section may be put on top of the heater or even in the attic. Units may be side by side, or one in front of the other, whichever solves the space problem.

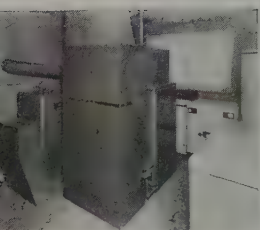
To offset their greater flexibility, separate units may need more servicing than certain combination units. Some equipment needs to have minor adjustments in fall and spring when it is changed from heating to cooling or back. Separate controls

are often required. Installation costs may be slightly more because two pieces of equipment need to be received, installed and tied together with ductwork.

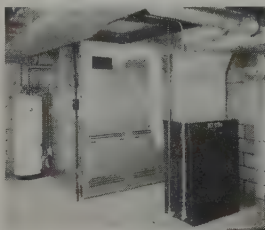
Can separate residential coolers be linked to any forced air system?

No—not unless the heating ducts were sized very liberally. In general, it takes more cold air to bring a room down to a comfortable 75° on a very hot day than to keep it comfortable in winter. Builders who doubt this well accepted engineering fact and use ducts that are too small will discover their cooling system won't operate efficiently.

Another reason for caution is that the blower in the heating system may be too small to push the greater amount of summer air through the ducts.



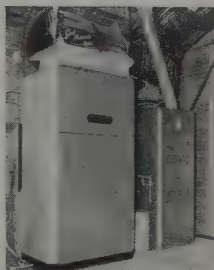
*Chrysler unit with Trion filter.*



*York cooler matched with gas heater.*



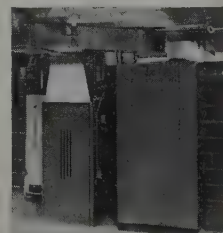
*US Air Conditioning Co.*



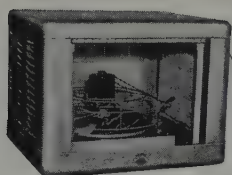
*Westinghouse cooler (left)*



*Coleman's new heater-cooler.*



*GE matched pair for heating and cooling.*



*Wright evaporative cooler with front panel removed.*

## Evaporative coolers—lowest cost summer cooling

Though these provide summer comfort in hot, dry areas, they cannot be called true air conditioning since they do not dehumidify and work effectively in only a small part of the US. They are most popular in the semidesert areas of the Southwest and California or wherever wet bulb temperatures are below 65° and dew point is below 55°.

An evaporative cooler is a box which fits outside a window or sits on the roof. A blower or fan draws a large volume of outside air through a pad of glass fiber, loose excelsior or similar material soaked by a continuous flow of water. Air is not only cooled by picking up moisture, but

cleaned and washed as well. Roof coolers have a plenum under the cooler and short simple ducts that carry air to each room.

But do they really cool? "They're wonderful 11 months a year," say people in Phoenix, "but they're hell when it gets humid." As irrigation is brought into an area, and increases the moisture in the air, as in certain parts of California, the evaporative cooler inevitably loses a good deal of its charm.

Window units cost as little as \$50 but to put a cooler on the roof and install pipes and ducts costs from \$175 to \$300. One roof unit will take care of about 1,000 sq. ft. of floor space.

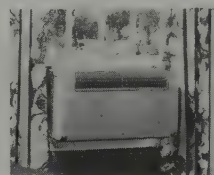
## Window or console coolers

Window units fit into a window or are built into the wall. A console cooler is the same general construction but stands on the floor just inside the window. These units, which cool and dehumidify, have water or air cooled condensers. This year 300,000 will probably be sold.

Hundreds of console units are being used in hotels and apartments but few builders have installed them in new houses. At this magazine's round table on air conditioning, Frank Mitchell of Fedders-Quigan criticized builders for not using them. "I look at the bedroom windows being built in homes near where I live. I

see little windows about 20" wide and 12" high. You can't put air conditioners in those bedroom windows."

Console types from  $\frac{3}{4}$  to 2 hp can cool up to three rooms. Air cooled consoles require a window or a wall opening, but water cooled models can be tucked into a closet. Two bedrooms in each house are cooled this way in a Camden, S. C. project (see p. 99). This kind of unit can also be used with ducts to cool bedrooms at night and a living room in the daytime. To work successfully, units handling two zones must be engineered by experts. One hp costs \$750, 2 hp costs \$1,000.



*Frigidaire window cooler*



*Remington window unit*



*Carrier console type cooler.*

## Two-in-one heat pump

So far the heat pump (H&H, Apr. '52), which both heats and cools, has not found a way to use its undeniably strong potential. Handicapped by high electric power rates in many areas and expensive installation costs, there are less than 1,500 heat pumps in the US today.

The machine acts as a reversible refrigerator, taking heat from the house air in summer and adding heat in winter. A refrigerant gas acts as the heat transfer agent. To accomplish both purposes a heat pump needs only compressors, condensers and fans. Source of the heat can be water, ground or air. In the Southeast, where water is abundant, the water-to-air system

has been a favorite year round air conditioner. In the Southwest, where water is scarce and expensive, the air-to-air type is making sales gains, with dealers crying for a bigger share of the small production. One newspaper ad in Ft. Worth brought 1,000 telephone calls about a heat pump. But the relatively high cost of installation has kept it in the luxury market. To estimate costs roughly, the unit will cost a little more than a heating plant plus a complete air conditioning unit, but its operating cost will be lower (in a cheap power area). Though operating costs are tied to electric power rates, the heat pump's economy stems from the fact that for every unit of heat (electricity) it uses, it borrows two from water or air. Improvements in compressors may be expected to increase this ratio still farther.

Because there is no combustion, no chimney is needed, but the ductwork required is the same as for an ordinary air conditioning system, and the heat pump using air as its source must have a large inlet

and outlet on an outside wall. Water systems need a deep well, either open or closed, in which to gain and exhaust heat.

As might be expected, the South has been the biggest market for heat pumps, though there is a unit installed as far north as Minneapolis (it takes its heat from the bottom of a lake adjoining the house). Another area getting heavy attention from heat pump manufacturers is the TVA region, with its cheap power and balance between heating and cooling needs. The heat pump is tied to the "high cost means low production, low production means high cost" tail chasing, but with GE, Typhoon, Acme, Brunner and Muncie Gear in the field their combined activity should bring important promotional and marketing gains. Biggest assist the heat pump could get would be its installation by a major merchant builder in the middle price field. With the all air conditioned house the hottest thing in the housebuilding industry, the heat pump might be coming into its own.



*Typhoon heat pump*





*American Standard's convactor type uses chilled water for cooling, hot water for heating.*

## Summer cooling with chilled water systems

Builders who prefer wet heat may wonder if summer cooling can be used with it. The answer is yes. Many office buildings, apartment houses and hotels are cooled with chilled water systems.

In new houses a chilled water plant can be put in the basement or equipment room near the boiler. In summer chilled water is pumped through insulated pipes to convactor-type units in each room over which air is blown by a fan. The same pipes and the same convactor-type units serve in winter and summer. One great advantage is that temperature in each room may be individually controlled. In long, strung out

houses it may be cheaper to install pipes than ducts, although the special room units necessarily cost more than grilles.

In thousands of existing houses where wet heat is installed owners wanting summer cooling will be able to get it with chilled water systems.

Builders who want warm water radiant heat in either floor or ceiling or any form of wet heat can add summer cooling at relatively low cost by locating an air conditioning unit in the center of the house and using very short ducts. A variety of cooling equipment is available, including "store" coolers, console or window units.

## How about cooling water?

Any builder or architect considering air conditioning for a group of houses must understand the local water problem. Nearly all systems use water to cool the condenser. A 3-ton condenser will use about 360 gals. per hr. Some cities are using so much water for air conditioning that the summer load has doubled in recent years. In most areas where water is short local ordinances forbid wasting water for air conditioning, or if there are no ordinances, the cost of water makes throwing it away prohibitive except for very small systems. In Philadelphia, water is cheap enough so that it could be wasted, but in the suburbs it costs around seven times as much. Air conditioning systems that use water from wells on the owner's property eliminate the problem.

In a few areas owners of air conditioning systems use the condenser cooling water for their lawns or gardens. They figure they would spend \$50 or so for sprinkling water during most summers (and the hotter the summer the more often they would sprinkle) so they count the cost of their air conditioning water as zero.

But the most common solution to the water problem is to recirculate through cooling towers. Water that circulates through the condenser is piped to the tower. As it cascades down it gives up heat to the surrounding air. Only 5 per cent is lost through evaporation, and the balance is recirculated, generally about 10° colder than before it went through the tower.

## Two types of towers

There are two kinds of towers: the first, called a forced draft or an induced draft type, has an electric fan and draws air through the tower. The second has no fan and depends on wind to do the cooling. It is generally referred to as an atmospheric tower, or a natural draft tower.

Each has its advantages. The atmospheric tower is considerably cheaper, costing from \$100 to \$150 (plus the piping and pump), while the forced draft tower may cost from \$400 plus pump and piping. The

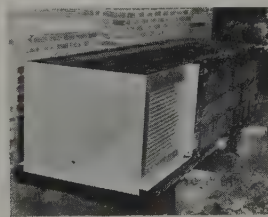
atmospheric type is quieter because there is no fan.

An atmospheric tower must be put in a relatively open space where there will be some breeze. It should not be surrounded with rose bushes or other shrubbery. Therefore it is nearly always more conspicuous than an induced draft tower which can be put next to the house or hidden with vines or a fence. Architects and builders are now putting forced draft towers inside the garage or in an equipment room.



*Metal cased forced draft tower.*

*Horizontal forced draft cooling tower, below.*



*Atmospheric tower*

## A new solution: the cooling fountain

Building materials dealer C. C. Rouse of Houston got tired of looking at cooling towers and decided that a water fountain could do the same job. He developed the plumbing sections of a fountain that ejects water horizontally to the center of the pool. The water breaks up into fine particles and is cooled by contact with the air. Engineers agree that his fountains do a good job.

The shape of the pool and the design of the center section can be varied to suit individual taste. His fountains cost about \$400 more than a redwood tower, but not much more than the forced draft tower needed for a 5-ton system.

*Below, fountain developed by Rouse*



## How many tons?

From long experience builders believe they know about how many Btu's of heat they need for a given size of house but if they are in doubt they can always use the next larger heater to add a few more. But heating is relatively cheaper than cooling, and no builder planning air conditioning can treat cooling as casually as he does heating.

A rough rule of thumb is: for each 500<sup>sq</sup> to 600 sq. ft. of floor space figure 1 ton of air conditioning. And normally for each hp of the compressor, there is 1 ton of air conditioning: a 3-hp compressor develops about 3 tons of cooling. The better compressors develop a little more capacity than the less efficient ones.

This rule should be used with great caution because it is valid only when houses are well insulated, when there are no window walls to the west, or any other unusual heat loss. Tests show that the sun bakes a roof up to temperatures around 180°. Without roof insulation, the average house would need a double-size unit for cooling. In Phoenix a long, narrow house with many windows exposed to the sun and with no shade trees or roof overhang would clearly need more cooling than a square house of the same square footage shaded by trees in Wisconsin. Design factors, discussed on page 107, are most important. In fact, a properly designed house can get along with a smaller air conditioning plant than one that is not planned for cooling.

Too much capacity may be worse than not enough because an oversize system does not run enough on a cool humid day to do a good dehumidifying job.

Choosing the right size cooling unit is highly critical. The builder should call in two consultants: an architect to design the house for air conditioning and an experienced air conditioning engineer who can work with the architect and recommend the proper size cooling unit.

## How much does air conditioning cost?

It is as difficult to say what air conditioning costs as it is to answer the question: "What does a residential heating system cost?" All these factors have an influence on cost: size of house, type of construction and insulation, amount of glass, duct lengths, cost of a cooling tower, geographical location, labor costs, number of units purchased by a builder, and the degree of perfection demanded by buyers.

One-ton units are being added for \$450 in northern New Jersey and for \$750 in two other areas. This in addition to heating costs.



*A package air conditioner will cool a whole house*

Two-ton central systems vary from \$750 to \$1,500 in addition to heating. A number of builders are installing 2 tons for around \$1,000, some are paying \$1,200, others \$1,350 and one \$1,500.

Three tons are being installed for as little as \$1,100 but some installations cost \$2,800. As a general rule, 3 tons cost about 50% more than 2 tons because equipment is larger, it is put in a house requiring more ducts, wiring may be heavier and cooling tower costs might be more.

Five-ton units installed cost from \$2,500 to \$6,500. In large houses air conditioning including all installation costs comes to approximately \$1,000 a ton including heating.

Some typical costs around the country:

In Dallas, builders Lewis, Lamberth, Laughlin & Silver are paying about \$1,000 for 2 tons of cooling plus \$500 for heating.

In west Texas Dick Hughes says his 3-ton unit plus heating will cost about that much too, and FHA will evaluate his heating and cooling up to 15% of total house cost.

In Houston, builder Ira Berne is paying \$1,200 for 3 tons of cooling in addition to his heating but his air conditioning contractor says from \$200 to \$300 could be cut out of this price if the house was designed for short ducts and a more efficient installation.

In Kansas City a 2-ton system would cost about \$1,000 plus another \$350 for cooling tower, pump and piping.

Three-ton equipment with both cooling and heating costs from \$1,800 to \$2,000 in Westchester County, but in one project in Connecticut 3 tons with both heating and cooling cost \$3,000.

Three tons of cooling in Philadelphia added \$1,500 to the cost of two groups of houses, in addition to the heating.

In houses under \$15,000, cooling alone has been costing around 10% but some installations have been done for less.

## Operating costs

Like the initial cost of equipment, operating costs depend on the climate, how well a house is insulated, how many children run in and out, the cost of water and how cool a temperature is maintained.

Last summer in Philadelphia a 2-ton unit air conditioned a six-room house for a total of \$40, including water and electricity. In Pittsburgh a 2-ton unit cooled a six-room house for \$38. In Houston the electric power company reports that air conditioning costs about 20¢ per ton per day during the warm weather. Last summer cooling was used by most people for 210 days. The Dallas Power Co. advises that air conditioning is used about 1,000 hours during a cool summer, 2,000 for an average summer, and 3,000 for a really hot summer. Operating costs for a 3-ton unit would run from \$61 to \$161 per season depending on temperature. A 5-ton unit would cost from \$118 to \$283. These figures are for electric bills only and do not include water.

Builder Clayton Wyman said it cost a total of \$160 last summer (a very hot summer) to cool a 1,700 sq. ft. house in Houston. A dealer in Houston reported that owners of houses of around 1,200 sq. ft. would pay about \$1 per day for power and for the water they run on their lawns for their 3-ton systems.

In Wichita the water costs on 5-ton gas units were \$10 a month.

In Austin, Tex. monthly operating costs for gas units in \$20,000-\$25,000 houses run about \$30 for water, gas and electricity. Water in Austin for a 3-ton electric system costs about \$15 per month and one owner used it on his lawn, saying he would use that much water anyway.

Operating costs with air-cooled condensers are not yet known.

## Cooling without water

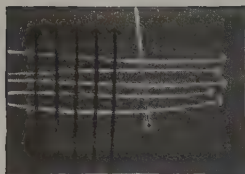
Cooling water may be expensive or a nuisance. Air cooled condensers eliminate water. This is no novelty as refrigerators are cooled this way, as are many window coolers. But the problem for the larger residential air conditioners is a more difficult one and air cooled compressors are only beginning to be used for such work.

## Electronic filters—greatest unused sales tool

In the electronic filter, builders have a valuable potential sales tool for customers who will pay extra for a de luxe job of air cleaning. Builders have already learned that clean air, free of dirt, pollen and other irritants will sell some families on air conditioning who would not buy cooling alone.

When it comes to an extra-special cleaning job, electronic air filters are at their best. They are used in nearly all the new scientific laboratories where clean air is of great importance. They cost about \$350 for a small house and from \$400 to \$1,000 for a large house.





air conditioning

## News about duct systems designed for air conditioning

**No matter how expensive or efficient a cooling unit is, it won't work well unless the distribution system is right**

A distribution system for year round air conditioning should be designed by a specialist because cooling problems are different from heating problems. A duct system that works well for winter heat may not work well for summer cooling.

While precise rules cannot be given that apply to all types of houses in all parts of the country, the following general summary should be helpful both to architects and to builders.

► Ducts for cooling should, in most cases, be larger than heating ducts. Reason: fear of creating a cold spot near outlet grilles prohibits the use of air sufficiently colder than 75° to do a proper job with the same air quantity that is enough for heating.

► Several firms now have "small pipe" duct systems designed for both heating and cooling which use 3½" or 4" metal ducts. (See page 116.) Higher velocities are used in summer than in winter.

► Fresh air should be supplied to the unit through an outside air duct. This is especially important for tightly sealed houses, otherwise no outside air is added to the house except through occasional opening of doors or loosely fitting windows.

► Additional grilles should be provided for living areas or any rooms that may be crowded. Extra air can then be stolen from bedrooms (by temporarily shutting off registers there) to provide increased cooling for parties. Later the extra grilles can be closed to permit the system to function normally again.

► Kitchens should have exhaust fans to carry off cooking heat and food odors. Baths should be vented to the outside or have small exhaust fans. There should be no return from kitchen or baths.

► Supply ducts for cooling must be insulated if they pass through hot attics or other

warm spaces. However, return ducts do not need insulation.

► Equipment noise transmitted through ducts is a serious problem. Supply ducts can be lined with soundproofing; short, straight runs of return duct may require acoustical lining or a baffle.

► The entire distribution system is related to equipment room location. In most in-

stances a central location permits economy because of short duct runs. However in many houses machine rooms are located near kitchen or garage to keep noises away from the living area. In some sprawling houses, there are two or even three equipment rooms and several zonal duct systems.

On these pages four systems are illustrated that typify different designs.

### 1. SUSPENDED CEILING PLENUM

LOCATION: Houston, Tex.

KOETTER & THARP, Architects

ATLAS AIR CONDITIONING CO., Air conditioning

Surrounding trees combine with roof overhangs to shield this partial two-story house from the sun. Roof insulation and double glazed windows serve as added protection from heat or cold.

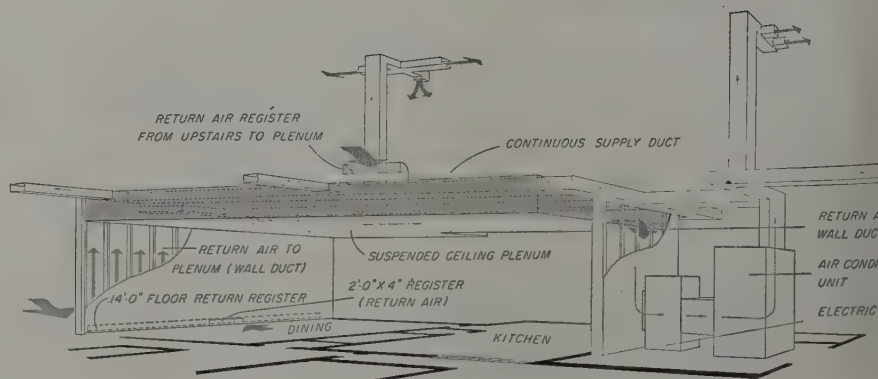
**Problem:** Provide year round air conditioning without extensive ducts winding through a 4,000 sq. ft. house and without sacrificing either the heating or cooling performance.

**Solution:** Heating and cooling are supplied by means of a distribution system which fans out and up to all rooms. Air blows into rooms from high wall grilles

and from ceiling diffusers. Air is returned to the air conditioner through baseboard grilles on interior walls. The equipment room is located off the drive-through, with an outside entrance.

**That's fine for cooling; what about heating?**

The engineers planned for continuous air circulation in winter to prevent cold



air stratification at floor level. This is said to be satisfactory in Houston where winters are not severe, provided double glazing is used in windows. (Return grilles under windows, however, are recommended in colder climates. They scoop cold air off window surfaces and outside walls before the cold can penetrate to the rooms.)

## 2. A REVERSE FLOW DESIGN

LOCATION: Philadelphia, Pa.  
JOSEPH LUPOWITZ SONS, Builders  
PEIRCE-PHELPS, INC., Air Conditioning

Merchant builders face a dilemma when some buyers want summer cooling, others don't. A case in point: these 1,800 sq. ft., one-story houses have wood floors built over a crawl space. Front is insulated 12" stone. Side and rear walls are brick. Asphalt shingles are used with 2" bat insulation over the ceiling.

**Problem:** Provide ducts for heating and cooling in 30 houses. Allow for the addition of cooling equipment at the option of the individual buyer, now or at any future time.

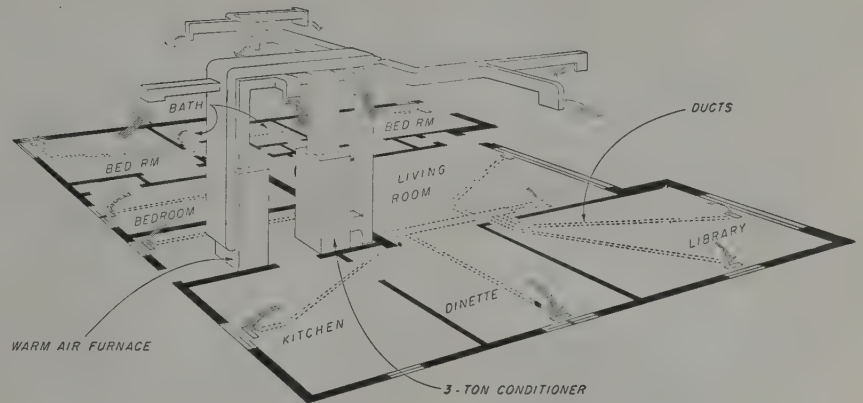
**Solution:** The builder provided a central location for separate heating and cooling units. The air conditioner can be easily added and linked to the heater. A radial type of perimeter heating provides warm air in winter. Supply ducts extend under the floor to outside walls. Warm air is dispersed through floor registers under windows; glass and outside walls are thus blanketed with warm air. The engineers let air return through grilles high on interior walls, via separate ceiling ducts which lead back to the furnace.

The homeowner operates a change-over damper which reverses the distribution in summer. Cool air is now supplied through the ceiling ducts, which are insulated, and

### How was cost cut down?

Above the kitchen and dining area is a suspended ceiling space which the engineers used as a return air plenum. Air from outlying rooms flows back to the conditioner through this plenum (see drawing on p. 112). Thus, the engineers eliminated the need for return ducts in most of the house and consequently cut costs.

**Equipment and cost data:** A hot water boiler is teamed up with a 7½ ton air conditioner and hot water is pumped to a coil in the conditioner for heating. An electric air filter, germicidal lamp, and cooling tower round out a de luxe year round system. Total installed cost: approximately \$6,300. Of this, the ductwork, acoustical insulation, grilles were \$1,350.



enters the rooms at the ceiling level.

Air is returned to the equipment in summer through the floor registers and crawl space ducts. Come winter, the distribution is reversed.

Result: engineers have incorporated proved methods for heating and cooling in a reverse distribution system, i.e., warm air discharged at floor level in winter and cool air directed at the ceiling in summer. (With this type of system, however, it is essential to size all ducts accurately for double duty.) Without cooling, the over-

head ducts are not necessary; air is allowed to flow back to a single return grille in the equipment room door.

**Equipment and cost data:** Heating alone with a warm air furnace is \$750. Adding a 3-ton air conditioner brings the over-all cost for heating and cooling to approximately \$2,200. A cooling tower isn't included since the city water rates in Philadelphia are favorable for home air conditioning. The houses sell for \$22,250 without cooling; if the buyer wants air conditioning the additional cost is \$1,500.

## 3. SIMPLIFIED PLANNING



LOCATION: Houston, Tex.  
ARCHITECT, Dean Eichelberger

When York air conditioning engineer W. S. Miller installed heating and cooling in his house, he exploited simple design to eliminate extensive ducts and cut costs.

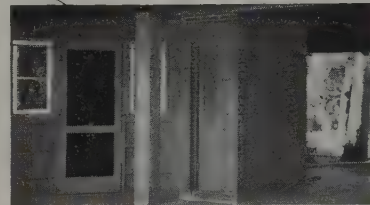
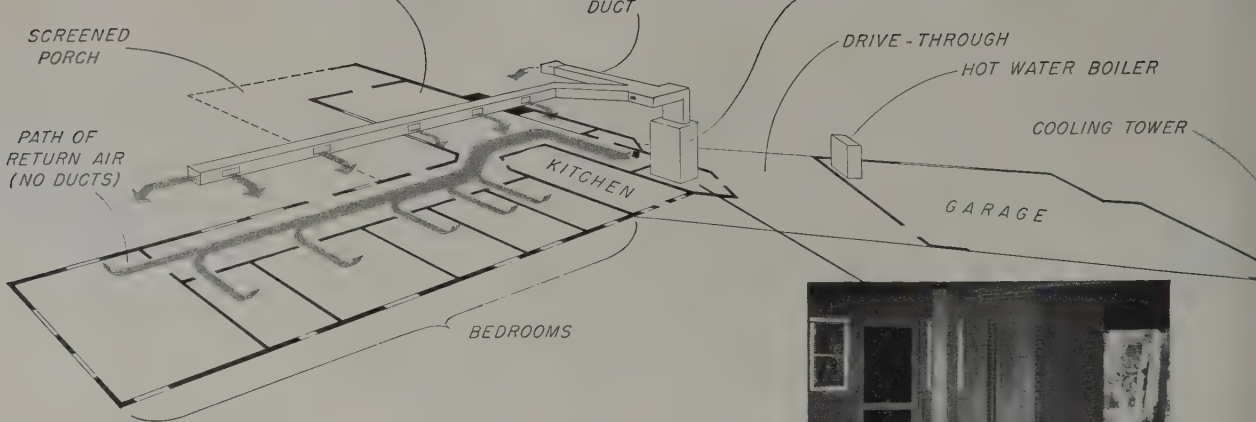
Miller's house (see photo) has a brick and shingle exterior and a concrete floor slab; it's in the \$26,500 class. The roof is insulated with glass fiber and insulation

board. Trees shelter the house from summer sun and from north winds in winter.

**Problem:** Provide year round air conditioning for a Y-shaped plan, with living areas in one wing, bedrooms in the other.

**Solution:** The air conditioning unit occupies a special equipment room at the center of the Y, convenient to cooling tower and heating boiler, so pipe runs are short. Exterior door gives easy access for servicing.





From the central location a straight overhead run delivers warm or cool air to the row of four bedrooms. This duct is unobtrusively furred-in under the bedroom ceilings and against the interior wall like a running beam. Another duct reaches over the kitchen ceiling to feed air into the dining and living areas.

Return air escapes from the bedrooms

through grille openings in the doors, and is pulled back to the air conditioner from all parts of the house. Fresh air is brought in through an opening in the outside door of the equipment room. By careful planning, Miller eliminated any ducts for return or fresh air. Bends and turns, the most expensive items in ductwork, are conspicuously few in this house.

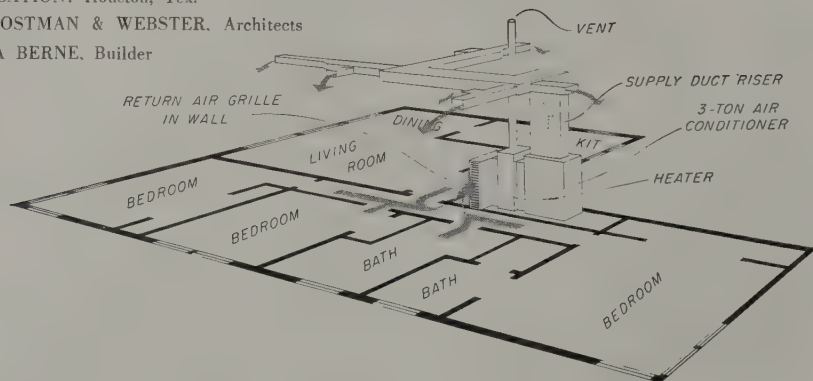
**Equipment and cost data:** Hot water from a separate boiler is pumped to a coil in the air conditioner for heating. For 1,300 sq. ft. of floor area, there is a 3-ton conditioner. Total cost for the heating and cooling installation was \$1,800. This figure includes \$485 for ducts, grilles and duct insulation where the supply runs through a furred space over the kitchen.

#### 4. AIR CONDITIONING IN \$14,500 HOUSES

LOCATION: Houston, Tex.

KNOSTMAN & WEBSTER, Architects

IRA BERNE, Builder



Cooling and heating are distributed to each room by an overhead system in these 1,260 sq. ft. slab houses. There are no return ducts and return air is pulled in through one grille in the equipment room.

Cost for heating and cooling is approximately \$1,600. No cooling tower is used and water is run out onto the lawn.

This house was not designed for air conditioning. The engineer who installed it believes he could save \$200-\$300 by using a furred down supply plenum in the hall and shorter ducts. He could use a 2-ton unit instead of 3-ton if the house was designed for air conditioning. (See p. 89.)

#### Location of registers or grilles

This is one of the most complicated technical points in air conditioning. Any location in a room tends to be a compromise. The best spot for a heating register (usually low and under windows on outside walls) is not the best for cooling (often high on inside walls, with air directed toward the point where heat gain occurs).

In the South, where cooling is more important than heating, registers are placed with primary consideration given to cooling. In the North, heating is more important and takes priority. When a common duct system is used for both heating and cooling there are advantages and disadvantages to all register locations.

The least expensive duct system is one with the equipment room in the center of the house, using short ducts supplying air from registers high on inside walls. While such ducts perform well for cooling, they may not provide enough warm air in cold climates to keep outside wall and window areas comfortable in winter.

Warm air entering the room from a high outlet may tend to stratify near the ceiling unless properly deflected.

Floor outlets under windows with air directed toward the ceiling are considered by some engineers to be the best solution in the North for year round conditioning. Outlets can be put in the window sill. This arrangement can be made for houses with

basements or crawl space, but require ducts in the slab for on-the-ground houses. Disadvantages are the problem of furniture placement to avoid cold drafts in summer and formation of pockets of cold air.

An interesting variation of normal distribution practice is illustrated in the Lupowitz houses (see p. 113), where the air moves one way in summer through the ducts and the opposite way in winter.

Return air ducts are less important in the South than in the North. Many Southern houses, including large ones, do not have return ducts, as the drawings on these pages show. From this brief discussion, it is clear that the distribution systems and the location of outlets is a matter for experts.



# Advice to builders

A digest of suggestions made by engineers, dealers, manufacturers and builders

## 1. Get your consultants early

Architects, dealers, engineers or other consultants can save a builder up to 20% of the cost of his system if they are brought in early. Installation of an efficient system can be trouble free and economical if it is planned soon enough.

## 2. How to buy

Buy equipment which is guaranteed for a known period and which will deliver a specified performance. Equipment is usually chosen to produce 80° inside temperature and 50% relative humidity on hottest, most humid days. A builder should know what his equipment is supposed to do and should educate his buyers on what to expect. Residential equipment, especially in builders' houses, is not designed to produce 70° inside temperature when outside temperature is 95° or 100°.

If possible get advice from your own engineer; in any case be sure to get professional advice by using a dealer who has engineers. A dealer who has added air conditioning to his line only recently may not have engineers who can design a system.

Buy from a dealer who is known to give good maintenance. Poor servicing can ruin the reputation of a builder, even though he is not technically responsible for providing maintenance. Poor servicing of the first installation in any community can damage the future of air conditioning. If word gets around that "it won't work," builders will have a liability on their hands instead of a sales asset.

In buying new equipment, a builder should know fairly accurately what monthly operating costs will be. Buyers will be dissatisfied if costs are higher than they anticipate. Both FHA and VA are watching operating costs very carefully.

Don't buy solely on the basis of price. In some areas builders have become so cost conscious of heating that they buy any heater that is cheapest. That policy will not work successfully in buying air conditioning. One builder has already had a disastrous experience from chiseling on his ductwork and installation. He tried to buy cheap, and as a result the subcontractor making the duct installation tried to save money and put in a poor job. The cooling

did not work and the builder got a black eye. After a builder has had several years experience with air conditioning he will know enough to cut some corners, but he'd better not pinch pennies on his first jobs.

## 3. Good construction is necessary

When a house is loosely constructed or poorly insulated such faults show up faster and are more expensive with cooling than with heating. Roof or attic floor insulation is important in the winter, but is an absolute necessity if the house has summer cooling. Wall insulation is valuable, but is not as vital as in the roof which gets a greater sun load than side walls. The west wall is the most important to insulate.

Good construction, coupled with the design factors described on opposite page, will save money on original equipment and will reduce operating costs.

## 4. Installation is as important as efficient equipment

Location of equipment room can save money in ducts and piping. It should be large enough for the equipment and also for servicing. The most common criticism that air conditioning dealers have against architects is that equipment rooms are too small and inaccessible. Condensate drains are important and must be planned properly. Provision should be made in advance for pipes to and from cooling towers, and for adequate wiring. If equipment is put in the attic some builders believe it should be mounted on 2" x 10" members, not for added strength but to prevent vibration.

## 5. Don't skimp on ducts

Cheap ducts are apt to be made of metal that is too light and they will be noisy. If ducts are not tightly joined they will let air escape. When supply ducts go through warm air areas, such as attics, or crawl spaces or basements that are not cooled, they should be insulated. Square elbows without veins will reduce efficiency. Sheet-rock ducts are inadequate for cooling as the outside paper will come off. As a general rule, return air ducts are less important for cooling small houses than for heating but this is a technical problem for engineers.

(Continued on page 154)

## How to use air conditioning as a sales tool

Year round air conditioning is one of the greatest potential sales tools a builder can find. Yet scarcely one of them is taking full advantage of it. Here are eight of the best ideas from builders throughout the country:

1. Use signs in model house to explain air conditioning equipment and what it does: heats, cools, dehumidifies, cleans.
2. Put a full size "cut away" model of air conditioner in garage, or install one with panels open, and explanatory signs.
3. Hang a pair of dirty filters on garage wall with sign: "This dirt removed from air of this house in only two weeks."
4. Explain how circulating cleaned and filtered outside air is as beneficial as opening windows and cleaner.
5. Dramatize the idea that clean air means less housework: less dusting, less cleaning of rugs, etc.
6. Emphasize health benefits: less pollen, hay fever, smoke, colds, chemicals in the air. Closed windows mean quieter nights.
7. Show how much moisture is removed from house air on a humid day by exhibiting pails of water taken from the system.
8. Use a drawing or a three-dimensional model of the house to show how ducts distribute air to all rooms.

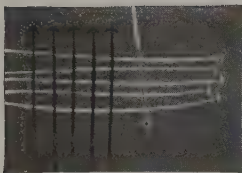
## Sell the women

As a general rule, men are already sold on air conditioning from their work experience. But women as a group are not yet sold. Women want windows open, distrust the effect of "cold air" in summer on their children. They are prejudiced against air conditioning because of unpleasant experiences in glacial movies.

These apparent liabilities can be turned into sales assets if builders dramatize the healthful effects of air conditioning. They can also emphasize that residential temperatures can be kept considerably higher than in theaters or restaurants, and that there need be no chilling drafts in a well designed house.

The woman in the family is very definitely the one who will say yes or no to the air conditioned house, and it is she who must be sold by the builder.





heating

## What's happening in heating?

**In five years residential heating has gone through a steady evolution, including the most complete "disappearing act" in construction history**

Residential heating has changed more since 1947 than in any similar period in history. New ideas have so thoroughly altered the design and installation of heating that they can be called either evolutionary or revolutionary.

Heating equipment is not only new and different. It is clearly the best designed and most efficient ever put on the market. Here are the new trends:

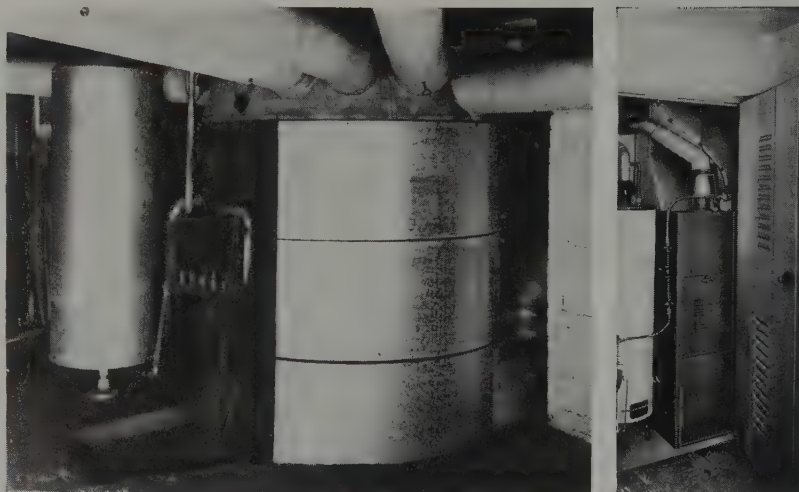
### The disappearing act

With the disappearance of the basement in many builders' houses the enormous furnace or boiler has also disappeared. The old-style furnace room has been replaced by a small equipment room located in a closet, or the heater has been moved to a corner of the utility room, to the garage, tucked away in the attic or in a crawl space. Some horizontal heaters are hung from the ceiling or put on a high shelf in an out-of-the-way place. Old-style wall furnaces have been redesigned to occupy less space and yet produce more heat.

One of the most complete visual disappearing acts has been performed by boiler manufacturers who have made their units so compact and so beautifully tailored that they fit unnoticed into the kitchen. Even in basement houses where space is not so tight the trend toward compactness, begun in the 1930s, is still going on.

### Ducts are smaller

In many slab or crawl space houses the ducts have disappeared as far as the home buyer is concerned, for he never sees them. But even when they are in sight, they are becoming smaller. The trend to smaller ducts is so strong that President John W. Norris of the Lennox Furnace Co. says: "I am so confident that the combination of 4" pipes and the 2" x 14" floor diffusers represents the forced warm air installation of the future that I have freely predicted



*Old-fashioned gravity warm air furnace and hot water boiler required enormous space compared to modern equipment. Present-day furnaces can be hidden in closets, attics, or crawl spaces; blowers circulate warm air to all parts of house.*



*Horizontal furnaces are designed especially for attics or crawl spaces. Box plenum at left of this Norman gas-fired unit dispatches air to ends of house. Return air is pulled up through ceiling at right. This furnace is made in four series, 40,000 to 100,000 Btu's.*



*Kresky dual wall furnace supplies warm air to front and rear independently. Furnace has a fan, is oil fired, and panels are finished in ivory baked enamel. Access door is built into panel on opposite side. Output is 57,500 Btu's per hour.*

that it will be the accepted standard within three to five years."

More than half-a-dozen firms are now offering small pipe systems. Builders, FHA and VA officials have become so vitally interested in them that a new small pipe guide has been prepared by the National Warm Air Heating and Air Conditioning Association.

#### **Also disappearing: the large register**

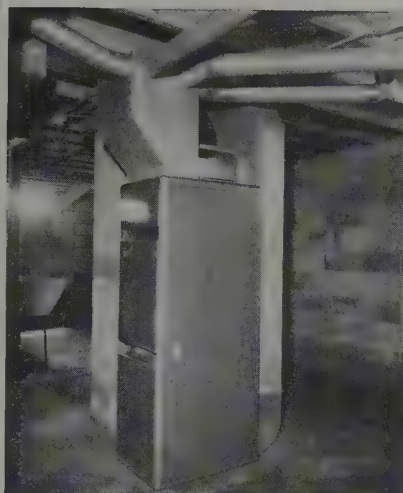
In both warm air and wet heat systems a steady trend has been to make the register or the heat transfer equipment smaller. Old-fashioned radiators have been replaced by inconspicuous convectors or baseboard units. Registers in floors, walls or ceilings are greatly reduced in size.

Some systems, such as warm water radiant panels in floor or ceiling, or electric panels in the ceiling, leave no evidence of heating outlets.

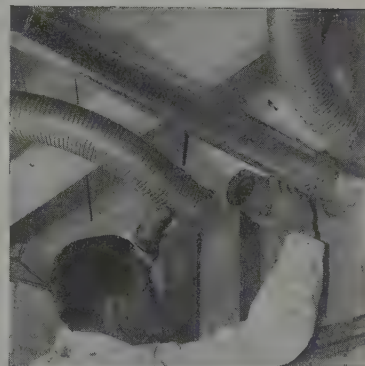
#### **More experimentation, better engineering**

Credit for the improvements in heating should go partly to the merchant builders who wanted something better and who were willing to work with manufacturers and to experiment. Credit should also go to manufacturers who are spending large sums of money for research to improve their units. Research sponsored by the National Warm Air Heating and Air Conditioning Association at the University of Illinois and also by the Institute of Boiler and Radiator Manufacturers has been directly responsible for many improvements. Steady information from FHA and VA has kept builders informed as to both successes and failures in systems that have been tried out.

The photographs on these eight pages illustrate the trends. Those on the preceding pages show the beginnings of a trend to year round air conditioning that will affect builders in many parts of the country.



*The compact Janitrol furnace with its 4" ducts owes much to research in aircraft heating this firm does. Engineers have emphasized highly responsive, compact furnaces; continuous air circulation; sensitive thermostats and small pipe distribution for perimeter systems.*



*Coleman ducts are fast to install because flexible sections eliminate elbows and other expensive fittings.*



*Zonal system is ideal solution for large house with much glass. Rooms like this facing south need little heat on sunny days, should have a separate thermostat. Rooms on north need to be zoned separately so they can be provided with heat whenever they need it.*

*Minneapolis Honeywell's outside "anticipator," below, can forecast inside heating needs.*





## Newest contender: the crawl space plenum method

Most significant news in residential heating during recent months is that the crawl space plenum method has proved to be one of the most efficient systems developed.

This rather casual method of blowing air into a crawl space from short, stub ducts in a counter flow furnace and forcing it into the house through floor registers (see drawing, lower right) has been thoroughly tested by the Mobile Field Testing Unit of the Warm Air Heating and Air Conditioning Association. These tests, last winter, revealed that the system worked extraordinarily well.

Principal advantage is the low cost of installation, due to the speed of installing the stub ducts. Because the entire crawl space is kept warm, the floor is warm.

Builders are cautioned, however, that many codes forbid the use of open plenums; heating ducts must extend fully to all registers. Though already proved safe and efficient, crawl space plenums are restricted in some areas until codes are revised.

An absolute necessity with this method is to insulate the foundation wall to prevent heat loss. Another requisite is to prepare the area below the house so that vegetation does not grow and to erect some kind of moisture barrier. Some of the early experimenters had weeds growing under their houses. When the weeds died in the fall the smell of rank vegetation was pumped through the house. It was also discovered that this heating system will not work well in damp, poorly drained areas.

Enthusiasts for the small pipe system believe builders will find it is just as cheap to run 4" ducts through the crawl space as it is to take all the precautions necessary to insulate and install a moisture barrier for crawl space plenum heating. A moisture barrier, preferably laid on 4" of gravel, must be used in crawl space plenums. Field tests show that there is not an excessive drying out of wood framing and floors with this method.

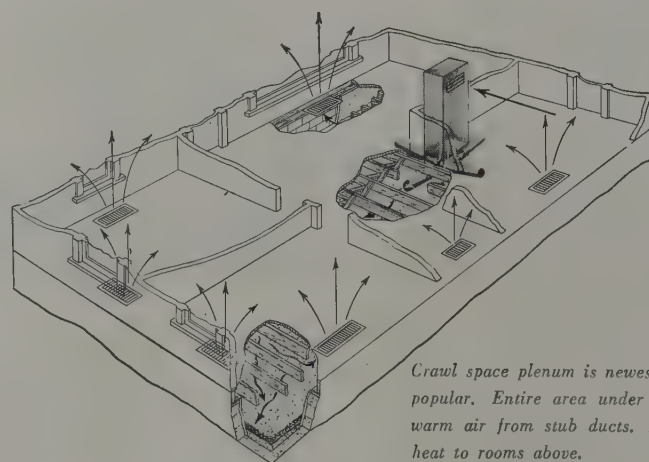
A considerable amount of experimentation is now going on among builders in



*A perimeter system with four feeder ducts leading to an outside loop has become standard for many builders of slab houses.*



*A radial system, without a perimeter loop, is used in many areas. Duct runs are shorter, but some exterior floor areas are colder.*



*Crawl space plenum is newest method to become popular. Entire area under floor is filled with warm air from stub ducts. Floor registers send heat to rooms above.*



*Tod Sloan is convinced assembly, left, is superior to square box plenum under furnace. Elbows act as turning vanes, reduce turbulence. Sheet metal elbows are cheaper than precast concrete plenum.*

all parts of the US with many kinds of systems. Nearly every big builder is trying to give his clients a better, more economical system. Such activity, combined with the manufacturers' own progressive attitude, is certain to bring steady improvements.

### Experiment in Colorado Springs

Builder H. M. (Tod) Sloan of Colorado Springs is representative of progressive experimenters. Using asphalt-impregnated fiber ducts in his slab houses, he believes he provides an efficient heating system at minimum cost.

Sloan claims to have cut duct costs 25% to 33% by reducing freight and handling costs. He uses three duct sizes and the factory nests 6" ducts inside 7", and these two inside 8" ducts. Thus he gets approximately three times as many ducts in a carload as he could without nesting. His installation costs are also low because two men "regularly will install the entire duct system in a 1,000 sq. ft. house in less than 2 hrs." (Photos, right, show details.)

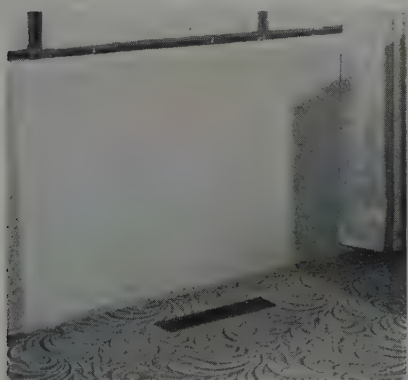
Sloan also saves money by placing his very simple plenum chamber below his down-draft furnace, which consists of four standard 8" elbows. Another economy comes from the absence of expensive fittings to take his 2" x 14" floor register.



*Above: concrete poured around ducts. Photo at right shows spun glass insulation around perimeter foundation and 2 by 4 blocks that raise duct 2" so concrete can be spread below.*



*Sloan saves time by using (1) three triangular shaped wood blocks to form register openings. Blocks are screwed to fiber ducts, and can be used many times. Cement finisher trowels around them, (2) and blocks are removed next day. Workman saws through fiber duct. (3) Register is 2" x 14".*



*The 2" x 14" floor registers are set out from the wall enough to be clear of curtains and small enough to be inconspicuous but provide a curtain of warm air over window and outside wall.*



*Mobile Field Unit engineers, left, from National Warm Air Association have checked heating in hundreds of houses, have contributed valuable information.*



## Warm water systems offer much that is new

In the trend toward compact heaters and heat transfer equipment the "wet heat" manufacturers take off their hats to no one.

Some of the most remarkable demonstrations of space saving equipment have been by the boiler makers. In-the-wall convectors, baseboard units that can scarcely be seen and warm water radiant heat in floor and ceiling have completely transformed typical prewar warm water installations.

Three examples of ingenious boilers are illustrated on this page. Two are no larger than a kitchen stove, yet each contains an oil burner, a boiler, a pump and a domestic hot water coil.

### ADVICE ON BUYING BOILERS

1. Builders should accept only boilers with the marking ASME in order to be sure of durability and good construction.
2. The IBR stamp (Institute of Boiler & Radiator Mfgs.) assures a buyer that a cast iron boiler will produce the output it is supposed to deliver.
3. Steel boilers should carry the SBI label (Steel Boiler Institute) as an assurance of rated capacity.

### Baseboard radiation

The inconspicuous, highly efficient baseboard unit has been a real advance in the warm water heating field. It completely overcomes the housewife's objection to old-fashioned radiators: the space they take up.

The baseboard unit is an elongated radiator or convector. Because it is carried around the outside walls of most rooms, it becomes a perimeter system, providing warm walls and an even room temperature.

The *series loop* is the latest method of installing baseboard units. Because the baseboard itself is the "main line," dozens of fittings and connections are eliminated. Research at the Univ. of Illinois has proved that total cost of piping can be reduced approximately 50% compared with old-type installations. (See drawing opposite.)



*York-Shipley unit has 90,000 Btu hot water boiler plus domestic hot water coil. It must sit next to brick or insulated wall to get a chimney outlet. In Levittown houses (H&H, Feb. '52) it is in the kitchen and the stainless steel top provides a valuable work surface. Size: 30" x 25" x 36".*



*Saunders Studio*

*National's 116,000 Btu boiler has a tankless hot water heater. Size is 32" x 30" x 56" high.*

*M. C. Hartwick*

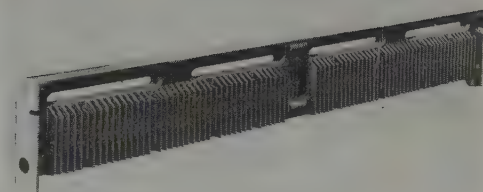


*Copper heat cast iron boiler, left, is 38" x 24" x 36", has 120,000 Btu input burner. Chimney connection is at rear. Oil burner, pump and expansion tank are inside the jacket, at the right of boiler. Jacket is insulated with 1" glass fiber.*



*Drawing of a typical convector that is completely recessed in wall: a series loop can be used for hook-up.*

*Rear of Burnham's cast iron baseboard unit. Hot water is supplied at temperatures up to 200°. Baseboard units average 7" high, come in many lengths for all size rooms.*



*Baseboard units, right, are at floor level in place of wooden baseboard. The Webster unit radiates heat through horizontal opening 5" above floor level in this room.*

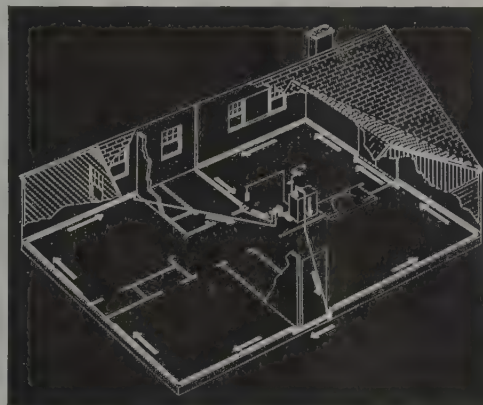


## Panel heating

Should warm water radiant heat be put in floor or ceiling? While the floor sounds like a more logical location, there are arguments in favor of putting such heat in the ceiling. Although warm air rises, heat as a form of energy will travel downward. With ceiling panels kept at from 100° to 120°, rooms are warmed evenly. Up to 70% of the heat gain is radiated from the ceiling compared with 50% radiated from floor panels.

There is less heat lag in ceiling panels since the mass there is less dense than in a concrete slab. Ceiling panels require more time to install but operating costs are lower. Although laboratory tests show that people are more comfortable with ceiling heat, it is significant that the largest builder in both Chicago and New York uses wet heat in the slab and finds the buyers like it.

*Hot water is pumped through two "series loops" of this perimeter baseboard system. Hot water passes through all units in flow around circuit. In series loop units are not bypassed by parallel connections. Fifty-seven firms make baseboard units.*



## Precautions on radiant heat in slab

1. Avoid wet ground. Heating panels should not be installed in a slab where the water table is less than five feet from the surface.
2. Builders should only use *inorganic* insulation for the slab such as foam-block.
3. Water under 150 psi pressure should be put through the closed pipe circuit before the concrete is poured. If no leaks develop the builder can then be sure that pipes and fittings will stand up under expansion stress inside the slab.

An electronic control system is believed to be the first practical means for controlling floor panel heating. A supersensitive electronic thermostat is located outdoors. It actually forecasts heat requirements inside the house before a weather change occurs. The outdoor thermostat is co-ordinated with inside controls to anticipate heat requirements and regulate slab temperatures accordingly.



*Experienced crews can cut installation costs of ceiling heat panels. It is important for coils to be installed carefully to prevent possibility of plaster cracking.*

*McGrath-Hill*



*Installation of copper pipe coils is carefully supervised to prevent "creasing," and to insure that all fittings are tightly connected. Slab should be protected from moisture and only inorganic insulation should be used.*



## Electric heat, can the builder use it?

**I**N A FEW favored areas of the us chimneys are disappearing from roof lines, and builders are finding a strong sales gimmick: electric heat. Where power rates permit, all-electric heating systems are both practical and popular with housebuyers, and rising costs of combustible fuels make the newcomer more competitive every year. Though first costs are relatively low, due to easy installation, high power rates or undue heat loss can make operation dear.

The builder interested in attracting women housebuyers with the cleanliness of electricity and men with the low maintenance and replacement costs must ask:

1. How high are local electric rates?
2. Is the house insulated to the requirements of this heating system?

To be completely competitive with gas, coal or oil, electric heating has to enjoy a rate of  $1\frac{1}{2}\text{¢}$  per kWh or less. Up to  $2\text{¢}$  per kWh, electricity is still feasible, provided the homeowner is willing to pay a reasonable premium for the convenience and safety of the system.

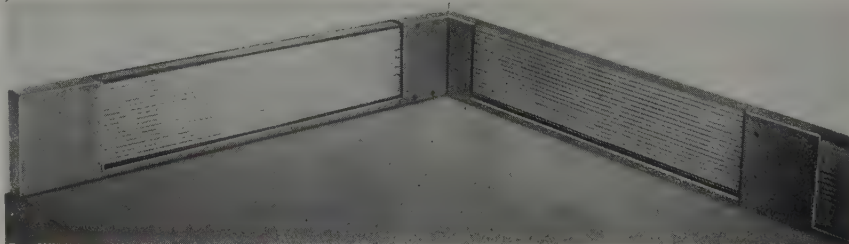
Utility companies in some areas have deliberately discouraged the use of electric heat for one primary reason: it threatened to increase their peak load during the winter without a corresponding use of the facilities during the nonheating months. Peak loads vary tremendously and there is no way to store up electricity. The system must be geared to the dark afternoon in December, when everything that will draw current is turned on. Those periods determine plant capacity, not the average load.

One factor that promises to help this situation is the increase in summer cooling equipment to balance the demand. Some southern cities, including Memphis, Dallas



*In radiant panel system resistance wire is fastened to gypsum lath with patented stapling gun, then embedded in ceiling plaster. A 6' nonheating lead connects heating cable and junction box. Heat is not turned on until plaster has dried thoroughly to avoid too rapid "dry-out" or "sweat-out."*

*Radiant glass panels, 6" high are now made in baseboard shape for either new or remodeled houses. Furniture should not be placed directly in front of units as radiant heat will be blocked. Aluminum reflectors behind glass panels direct heat out into room, rather than back into walls.*



and Houston, already have a summer peak rather than the ordinary winter one, due to the increased use of air conditioning.

Current NPA rules allow just 50 lbs. of copper in a house using electric heat (15 lbs. extra). Unless every design economy is used, the wiring of an electric heating system can use this up fast. To compensate, the absence of any pipes, ducts, furnaces or chimneys frees design of the house to a hitherto unknown degree. With good planning great advantage can be taken of this.

Though manufacturers disagree on how and where electric heat should be used, all are agreed on the importance of insulation. Most of them refuse to guarantee their equipment in houses that are not insulated to their specifications.

Ceilings are required to have at least 4" of insulation (not reflective) with a U factor of .07 or less in both ceiling and walls. With wood floors, the U factor should be .125 or less; and with a slab, 4" of loose gravel and a vapor seal are called for. In areas having over 4,500 degree days, weather stripping and storm windows and doors are required. Poorly insulated walls act just like a blotter, absorbing the radiated heat from the body at a faster than comfortable rate.

Builders have found that they can put electric heat into speculative houses where

power is cheap and winters are mild. In the TVA area, there are more than 75,000 all-electric houses. Large projects in the South and West where winters are mild have used electric heat successfully. In some parts of the North and East, builders are taking advantage of the popularity of the system.

The builder who plans to use electric heat has a choice of two basic systems:

**1. Radiation:** Radiant panel systems, currently in use in many builders' projects, function primarily by raising the temperature of the interior surfaces of rooms, rather than the air itself. Most common are glass wall panels and various forms of ceiling panels. A resistance wire embedded in a plastered ceiling has been in use for many years, while a rubber manufacturer and a leading electrical firm have brought out panels using, respectively, conductive rubber and a copper filament-vinyl resin-foil sandwich, both specifically intended for ceiling installation.

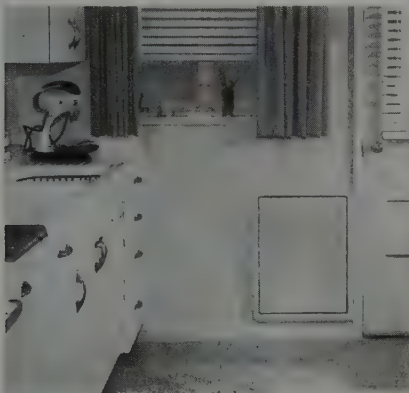
Ceiling advocates claim their location provides the highest degree of radiant heat (70%) and that the ceiling offers the largest unobstructed area from which heat can be radiated. Its large surface can be low temperature source of heat and it puts no limitations on furniture placement.

Glass panels, furnished for either walls or baseboards, have metallic conductors permanently fused into the backs. Though they reach a relatively high temperature (300°) they will not burn the skin on temporary contact and are incapable of setting fire even to inflammable materials.

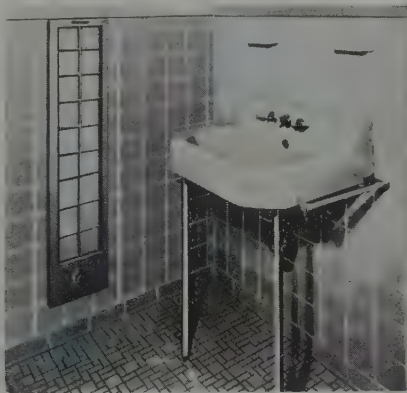
**2. Convection:** The West Coast, with its light heating load and favorable power rates, has long been a stronghold of electric heat. Most common system is that of convection in which air is warmed around heated coils, radiators or resistance wires, expands and rises, setting up a circulation within the room. The heated air transfers its heat to the objects in the room. One drawback to convection-type heaters is the problem of "smudge" on walls and ceilings from dust borne by the moving air.

Though electric installations cannot compete in first cost with the cheapest warm air systems, they do compete with quality installations (and, of course, there is no maintenance or replacement to consider). One production builder in Knoxville claimed that \$400 will cover all costs of a heating system for a 1,000 sq. ft. house. Other panel systems run between \$65 and \$80 per 1,000 cu. ft. Conductive rubber panels are considerably higher today, but they are just beginning to get into mass production and the cost may be expected to drop.

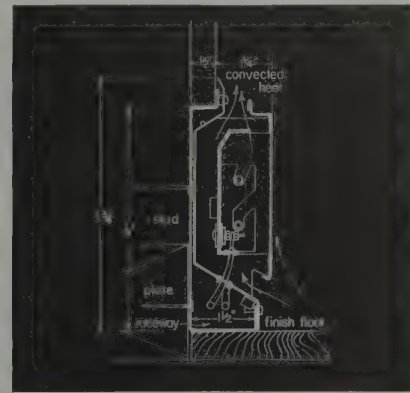
Rodden



Metal heating element is fused into back of glass panel and all units carry guarantee against breakage. Panels can be individually controlled so that only rooms in actual use need be heated. The first use of radiant glass was in the deep, damp tunnels of the Maginot Line fortifications.



Supplementary heat is easily furnished by electric units in bath or nursery, or where extension of present heating system would be too expensive. Panels come in several sizes and shapes to fit specific needs. Average panel costs \$75-\$80 completely installed, heats approximately 1,000 cu. ft.



Convactor baseboard unit illustrates basic method of all convector heat. Cold air on floor is drawn in at bottom, heated by resistance wires, then rises along wall to set up circulation in room air. Other units use fins or coils as heating surface, with built-in fans to distribute warm air.



# TEXTBOOK HOUSE

**Its compact plan, its clear, expandable structure and its novel framing details make this an important solution to the problem of the small house.**

This 1,600 sq. ft. house has three things to suggest to builders and architects alike. And it makes its points clearly and well:

**First, its utility-core plan** with interior baths is a neat and well studied solution for the three-bedroom house;

**Second, its post-and-beam structure** makes future expansion much easier than the traditional balloon frame could;

**Third, and most important, its framing system** (which mixes rough and milled lumber) makes the assembly of wall panels, windows and doors an effortless operation. It promises to make it an increasingly economical operation as well—for unlike many modern wood houses (which *look* simple but turn out to be hard and expensive to build) this one *is* simple to frame, to finish and to expand.

LOCATION: New Canaan, Conn.

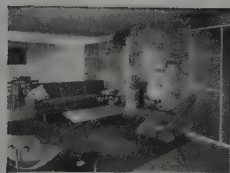
JOHN MACLANE JOHANSEN, Architect

THEODORE DE F. HOBBS, General Contractor

Photo: P. B.







DAY

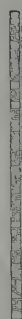


SERVICE



NIGHT

Ben Schnall



*Plan at left shows house in present stage, a 35' by 45' rectangle divided into daytime, service and nighttime zones. The post-and-beam framing makes future expansion easy, and plans (above) are already drawn to add a new dining area, new dining patio, and new master bedroom.*



## Utility-core plan

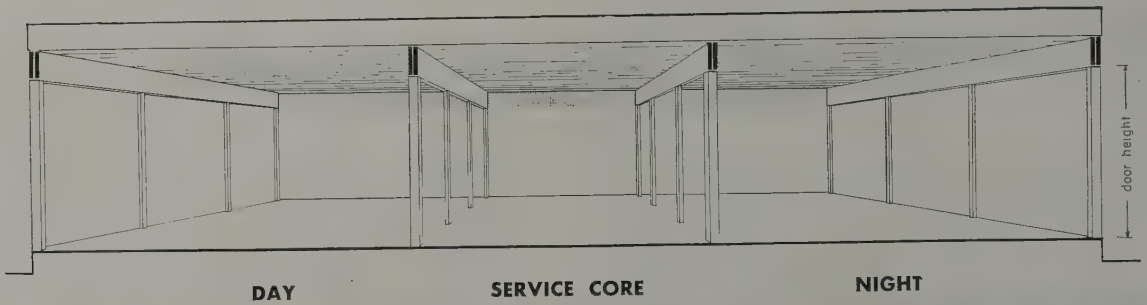
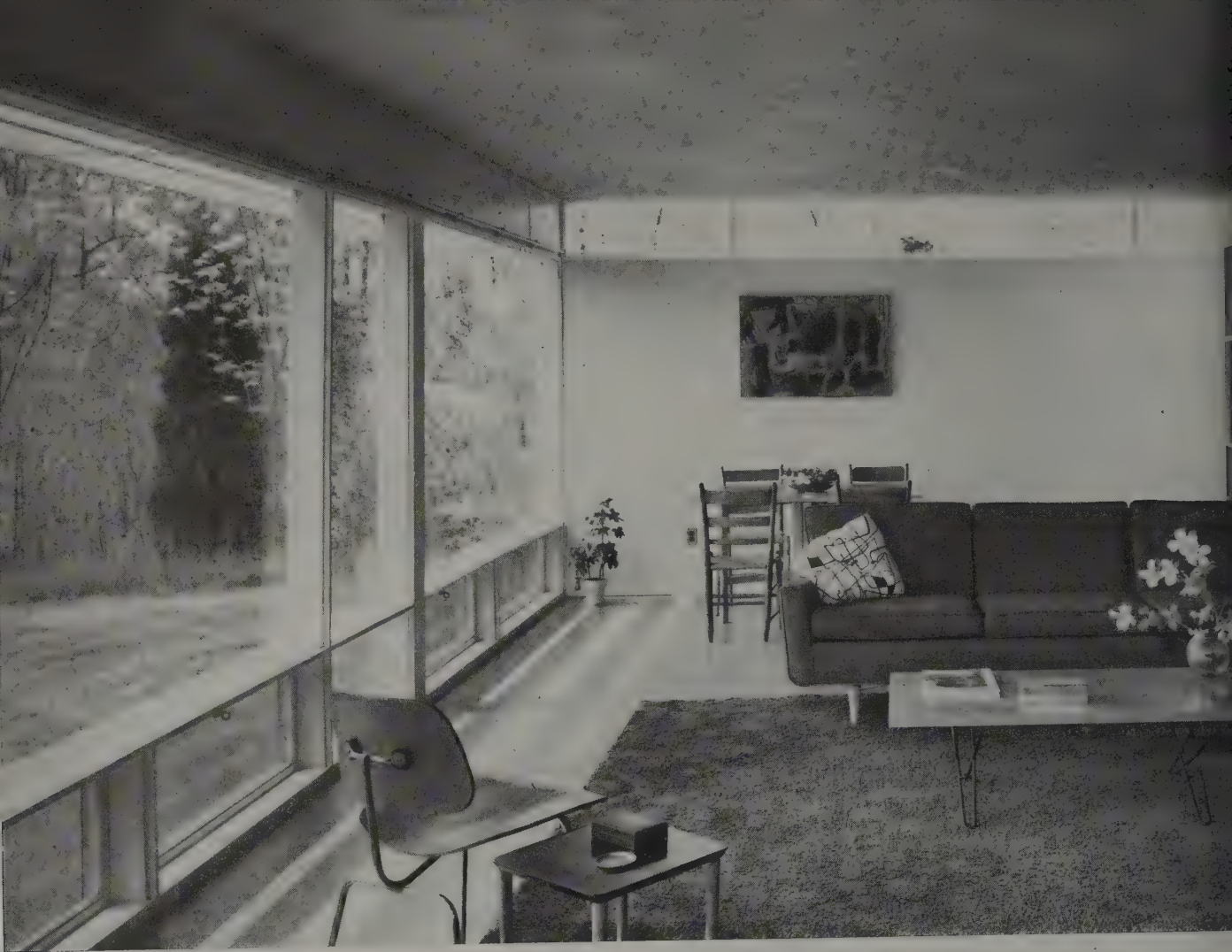
Two points make this an unusually good plan: first, it is carefully zoned into daytime, service and nighttime areas—all within a 35' x 45' rectangle; and, second, it was designed for effortless expansion—without structural or other design complications.

The central utility-core plan is not a new idea, but it is an idea that has found surprisingly few adherents (perhaps because FHA doesn't care for inside bathrooms). The plan avoids long plumbing runs, doesn't waste precious outside walls on bathroom windows, and allows for an effortless separation of study-living-dining areas from bedrooms and playrooms. And the entrance can be located between these two zones.

Architect John Johansen has made quite a feature of his entrance lobby—and with great success: its spaciousness (9' x 13') relieves this house of any stigma of minimum living, gives it some of the formality of the traditional New England home. Yet the space is by no means wasted, for the lobby is the main (and almost sole) corridor area.

When this house is expanded to take in a fourth bedroom and to enlarge the living-dining area, the plan will in effect become an H scheme (see Breuer story, H&H, May '52), for in the expanded version there will be a dining and service patio at the west end of the house to balance the formal entrance to the east.





Photos: (below) P. B.; (others) Ben Schnall





## Post-and-beam structure

For several years Johansen has been working to perfect a post-and-beam system of construction to conform to the more open spaces in today's interiors and to the bigger glass areas in today's exterior. (See *his own house*, July issue '51.) The details and construction method he has worked out (described in full on pp. 128-129) should make a contemporary wood house a great deal easier to erect, for this is the kind of universal "housebuilding kit" many have been dreaming about.

But since the kit is an integral part of the post-and-beam concept, it is first necessary to describe the bare structure of the typical Johansen house.

In this one, the structure consists of 16 4 x 4 posts (or their equivalent), all but four of them in the outside wall. The posts are set in four rows and mark off the house into its three plan-zones. They support exposed 4 x 12 beams that run the short way (east-west) and these, in turn, support 2 x 10 joists that are buried in the ceiling and run north-south (see diagram).

Now, the way Johansen handled his joist-over-beam-over-post frame produced three conditions that simplify his structure, plans and elevations:

**1. The beams are dropped to the level of door and window heads,** thus eliminating costly framing and complicated "fudging" above these openings. Since the dropped beams line up with the divisions in the plan, they help to suggest dividing lines between adjoining and open spaces; and they are also used to close off the tops of free-standing storage walls. Actual ceiling height is 8'-3/8"—which happens to be the same as the AIA-NAHB standard for builders' houses.



**2. The nonstructural wall panels between the posts can be knocked out without any trouble** whenever the house needs to be expanded.

**3. And the fascia around the roof line is a 2' deep wood-and-glass band that holds the house together,** visually. Here is how: There is a double-depth fascia on the north and south facades, where the beams are visible. On the east and west sides, however, the depth between 4" wide beam ends is taken up by long slots of glass, which make the ceiling appear to be floating on air, and which give the interiors an illusion of great spaciousness.

*View of living-dining area shows Johansen's system of dropped beam construction, with spaces between ends of beams taken up by glass slots. Note that there is continuous trim line under both beams and slots. To see how Johansen avoided "jogs" in this line, turn to details on the next page.*

*At right, study area and entrance lobby. Dropped beams form entrance archways, close off tops of storage walls.*

*View at foot of opposite page shows entrance facade. Sun shades project above living and bedroom windows.*



## Millwork frame

But the most unusual aspect of this house is the millwork frame Johansen has developed for it. This innovation is perhaps as important to easy construction of modern houses as the stud frame was to the economy of more traditional homes. For, by *mixing two standard milled sections with his rough lumber*, Johansen has produced a universal system that is ready to take all doors, all wall panels, all glass panels and all windows as soon as the structural frame is up. In fact, the carpenters can then all but throw away the blueprints!

In this particular house Johansen was still experimenting with the system, required *seven* very slightly different milled profiles (all cut out of 2 x 6s) to produce his revolutionary frame. Since that time, however, he has been able to standardize all millwork in his "housebuilding kit" to *two* profiles, milled out of a 2 x 8 No. 1 common lumber piece.

Here is how the "housebuilding kit" works in practice:

▶ When the floor slab (or platform) is in place, carpenters put down strip "A" all around the periphery of the rough floor—in place of the usual shoe made up of 2 x 4s. This immediately produces: a) exterior bottom trim with a drip and shadow line under the striated plywood panels used on the outside; b) exterior door sills; c) interior baseboards projecting above the finish floor when that is laid.

▶ The 4 x 4 posts, widely spread, are capped by another "A" strip, nailed directly on top of posts but acting as *head trim*, with 4 x 12 roof beams nailed in turn on top of the trim.

This one strip serves as head trim for all doors, windows, or wall finishes, interior or exterior, and again as sill for strips either of wood fascia (or of glass inserted in the space between ends of roof beams).

▶ Now the carpenters case all posts from top to bottom with lengths of strip "B" (cutting in window sills of strip "A" where needed). Mullions are built up likewise of strip "B."

▶ The beams are now topped off with joists. Here again the carpenters will insert lengths of trim strip "A" between beams and joists, and thus produce not only a visible dividing line outside between these two structural elements, but also obtain all heads for glass slots between beam ends, and a corner molding all around the plaster ceiling inside.

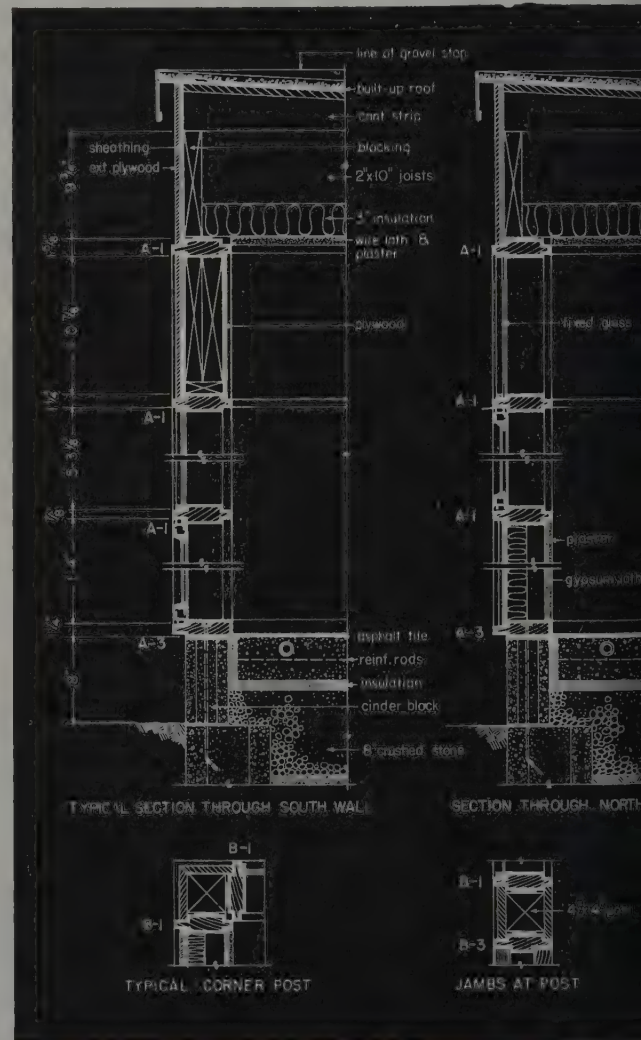
The result of this unorthodox way of mixing rough and milled lumber is impressive: in this house the millwork cost \$675 (including the cost of the No. 1 common lumber) eliminated all plates, some studs, much blocking. It took only 280 man-hours to erect the entire rough-and-finished frame.

What Johansen has devised, then, is a house *modulator*—a three-dimensional grid made up of precisely milled sections, into which you can fit *all* building parts (and even the structure itself) without trouble.

It is too early to say just what the savings in labor will amount to in the end. Already Johansen is building other houses that use the identical detailing system but vary radically in plan. The system should pay off handsomely in large developments of houses that use sheet materials like plywood for all finishes. And if it proves to be as flexible and as economical as Johansen believes, then it should make house architecture a good deal simpler, and the house architect's practice a good deal more profitable.

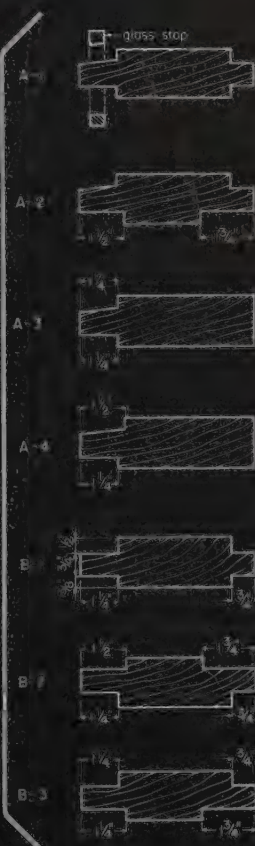


View of formal entrance lobby above shows beams dropped to door height. This avoids costly fudging above door openings, gives interiors an orderly coherence. Picture next right shows main entrance. Dropped beam again tops off door to outdoor closet, and standard trim neatly defines posts, wall panels, glazed openings and doors. Details are shown below.





Children's bedroom (above) has large windows under dropped beam, glass slot between ends of beams. Standard millwork trim forms molding around plaster ceiling and heads, jambs and sills. Plywood or other sheet finishes can be neatly fitted into this framework. View into dressing room (right) again shows several typical conditions: e.g., a dropped beam forming an archway and closing off top of storage wall; glass slots between ends of beams; head, jamb and sill conditions solved identically within the millwork frame.



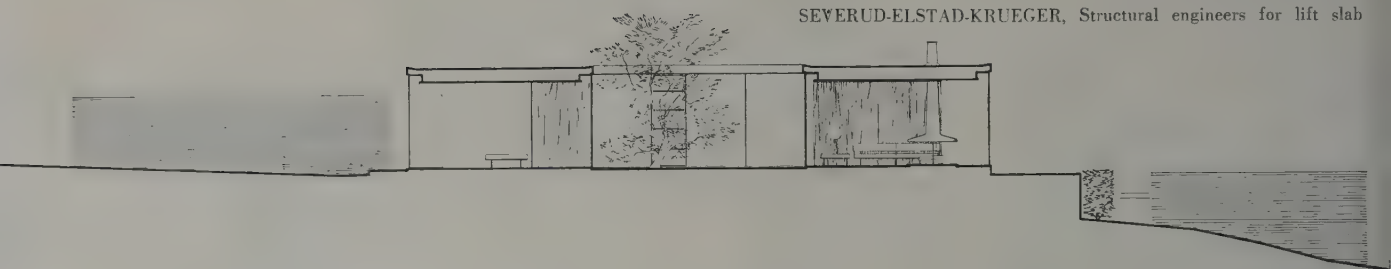
In this house, Johansen still required seven slightly different profiles (milled out of 2x6s) to make the millwork frame click (left).



In his latest structures, he has standardized his profiles to two — one used horizontally, the other vertically, both milled out of 2x8s (above).







## LIFT SLAB HOUSE: its patio plan shows flexibility of structural system, its detailing points toward a wider use of stock units in precision architecture

The project opposite is a spectacular *tour de force*. It is spectacular because of its all glass exterior, its tremendous cantilevers, its handsome patio plan. It is a *tour de force* because it uses the lift system of hoisting a concrete roof (June '50 and Sept. '51 issues) for the first time in custom-designed residential construction,\* and uses it to meet some of the most complicated requirements that the system has ever been called upon to fulfill.

When architect Warren Platner starts jacking up his lift slab over a Michigan lot this fall, he will be testing several ideas that others will watch with interest. Not all these ideas are concerned with structure—although the lift slab notion is the most impressive. (Picture below shows typical lift slab operation.) But in addition, he will be building

**A glass house**—with privacy provided by exterior screen walls and clusters of trees;

**A patio house**—with the inner court developed about as well as it has been done to date;

**A house for outdoor living**—with new forms and planes used to articulate the site plan; and

**A precision house**—with stock aluminum windows used in place of the Mies van der Rohe type of expensive, custom-made metalwork.

\* First lot of small, identical lift slab houses was built for Henry Street Settlement Camp in New York City in 1948 (Jan. issue '49).



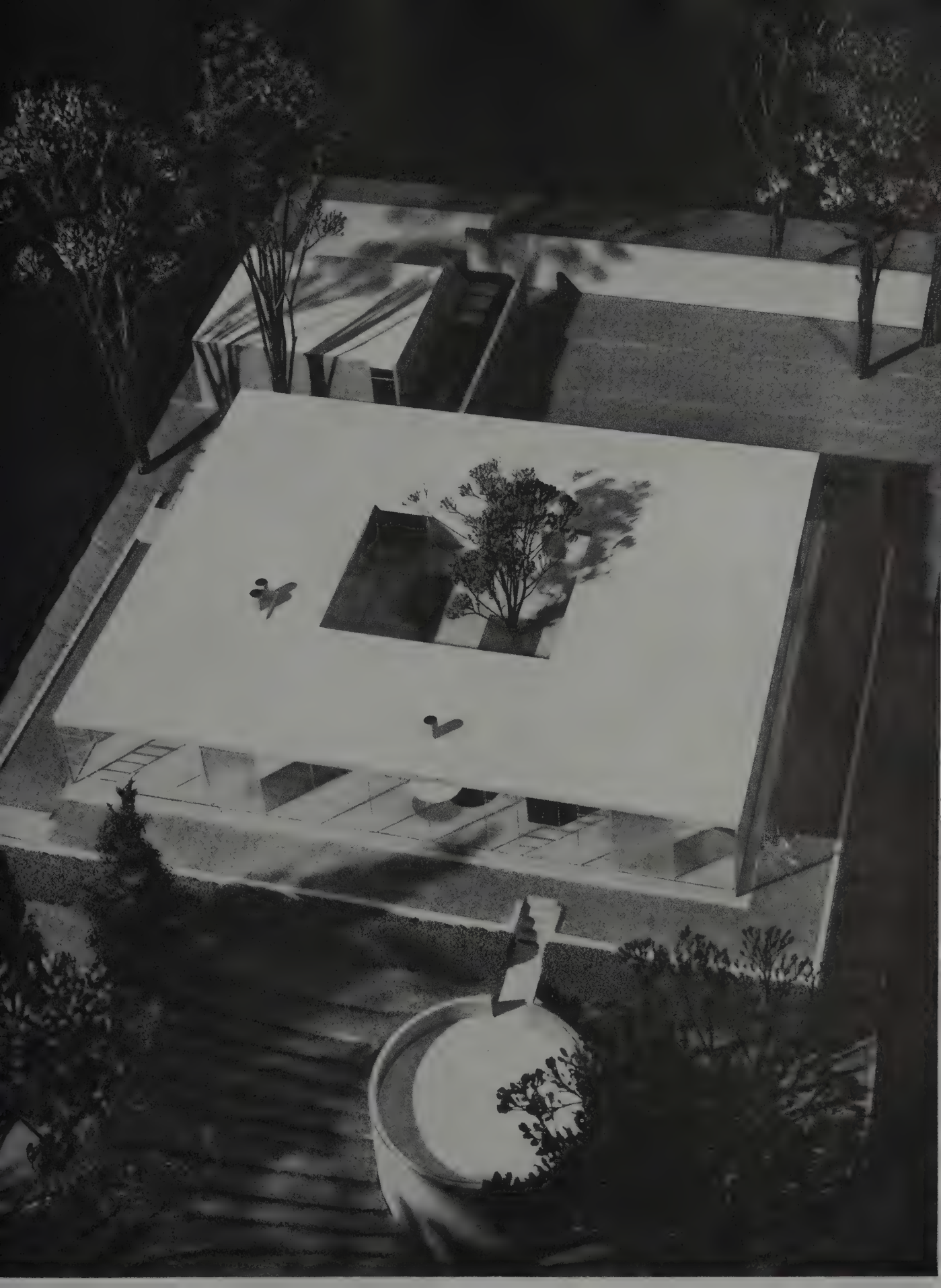
### Lift slab structure

This house has a concrete roof because its owner, John A. Cooper, is a concrete supplier. This makes economic assessment of the job extremely difficult—although experimental structures are always expensive, the owner's special resources helped materially to cut estimated costs.

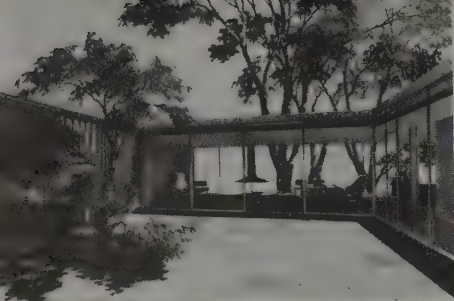
Platner's plans call for a patio house whose roof will be supported on only four steel columns to keep the plan as open as possible. This means (if you accept the lift slab notion) a complex reinforcing system (including four I-beams) to keep the doughnut roof in shape; it also means four cantilevered corner slabs, each 16'-6" x 12'. The structural design, by engineer Fred Severud, is indicated in the drawings on p. 133.

These drawings show, among other things, that the resulting slab is not flat on the bottom; it has a series of projections determined by the reinforcing patterns and I-beams. Consequently, it will be necessary to pour this particular lift slab into a form (made up, Platner suggests, of reusable cinder blocks and laid out on top of the floor slab proper). Such framework, while less expensive than the traditional type, is still rather complicated, produces an irregular ceiling plane which the architect proposes to cover with a suspended plaster ceiling. (See section above.)

He considered several possible alternatives before deciding that the hung ceiling was his best solution. The most obvious: to permit beams and girders to project upwards and out of the roof and thus leave the ceiling flush. Objections to this were that the roof would then have appeared very unsightly from the road (which is on a higher level); moreover, Platner's heating system (radiant pipes with fins) had to be hung in an air space *above* the plaster surface (rather than be embedded in the plaster) so that he needed a hollow space above his ceiling anyway. (This fin-type radiant heating system heats up and cools off faster than the usual, embedded kind.)







*View from the patio through transparent living room and towards woods and River Rouge to the south demonstrates glassy lightness of structure.*

### Patio plan and outdoor living

The excitement of patio houses is three-fold: first, they give the house an extra dimension, for you get an immediate glimpse of the sky a second or two after you have walked in through the main entrance, and you never lose sight of the sky again, wherever you may be.

Secondly, they give the house an "interior landscape" that is small in scale, isolated from the neighbors, protected against cold winds, and in charming contrast to the great outdoors.

Finally, central patios make it possible to light many rooms on two sides, eliminate dark passages, separate rooms of different functions easily, and use floor-to-ceiling glass walls without loss of privacy.

Architect Platner's house achieves all these effects with assurance. He manages to do even more: having a screen of woods around his site, he could make his peripheral walls all glass, give some of the bedrooms exterior patios surrounded by high, freestanding walls to protect their privacy. The results of this glassiness are two—the spectacular structure is well expressed in all its cantilevered verve; and the house is quite transparent, from entrance through patio and living room to the woods and the River Rouge beyond.

The architect conceived the house as an island of sophistication in a rural setting. To emphasize this apartness, he placed the house on a little platform of gravel and grass, like a piece of sculpture on a pedestal. (The strip of gravel around the base of the house makes lawn mowing easier since no clipping is needed.)

Platner added a sculptural foil for the large, rectangular form of the house. A few steps down from the pedestal, he placed a cylindrical solarium sufficiently protected to permit undisturbed sun-bathing. Its powerful form juts out of the hillside like some ancient battlement, will contrast strongly with the light grace of the house.



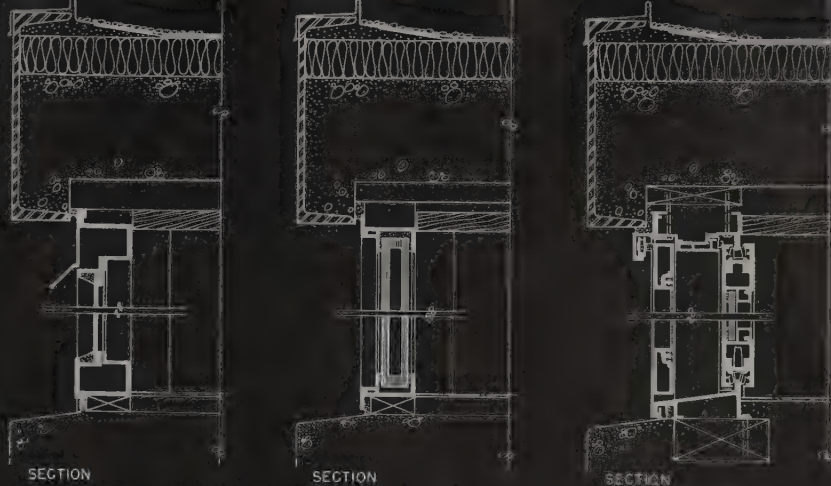
*From the road, the house will be virtually hidden by the long screen wall and the two-car garage. Exterior patio at left is part of bedroom area of house.*

## Stock detailing

Unlike Mies van der Rohe and Philip Johnson, Platner has been able to evolve a complete detailing system for his glass exterior using nothing but stock aluminum sections: the Florida-type of projected sash, aluminum-framed sliding walls and fixed, double-glazed panels. All of these reach from the concrete floor all the way up to the steel-faced roof line (see details).

The wide availability of well designed stock sections is an important recent development, and men like Charles Eames (Sept. issue '50) and Eero Saarinen have taken advantage of it for the past two or three years. Mies and Johnson — whose long-range objective is the greater simplification and standardization of metal parts so that buildings will look more orderly — have tried to achieve such simplicity by polishing their metals as if they were dealing with cabinet-work. Eames, Saarinen and now Platner are trying for a similar objective in a different way: they are using the inexpensive stock materials at hand and — by fitting them into an orderly building system — they are giving US architecture a more effortless coherence.

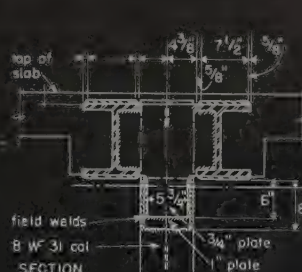
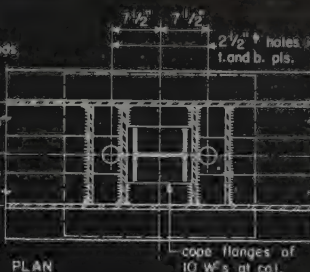
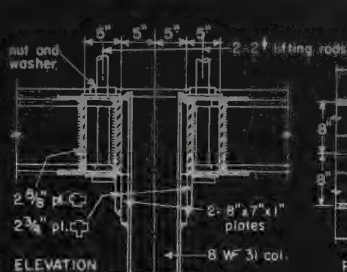
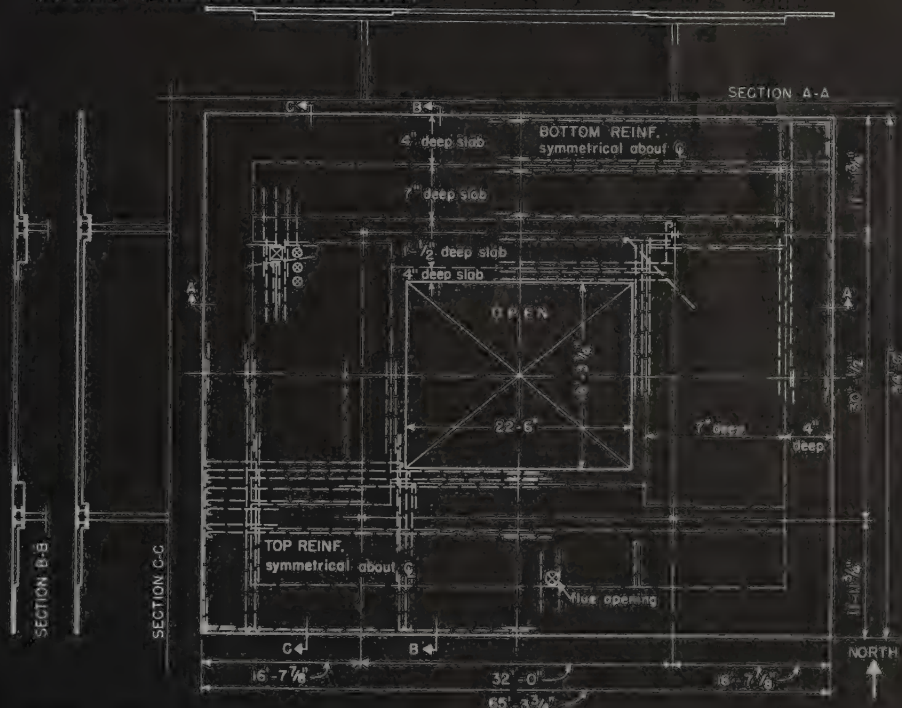
This house will be a further step in that direction when it is completed next spring; and its many interesting facets will then be presented in their finished form, for all to criticize and appraise.



DETAILS SHOWING PROJECTING SASH, FIXED DOUBLE GLAZING & SLIDING GLASS WALLS, RESPECTIVELY, IN SECTIONS (above) AND PLAN (below)



REINFORCING DIAGRAMS FOR ROOF SLAB (below)



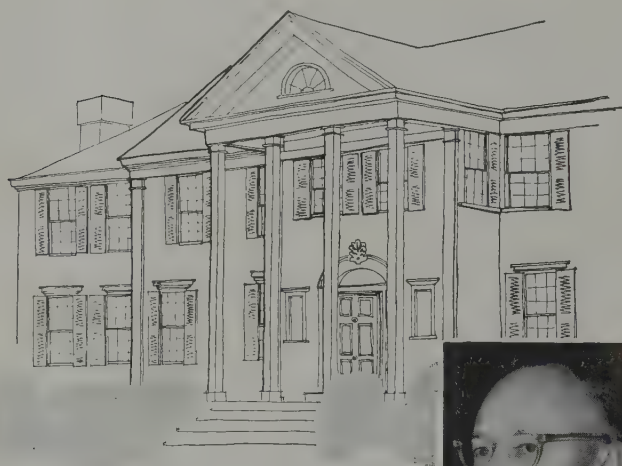
DETAILS OF COLUMN - ROOF SLAB CONNECTIONS



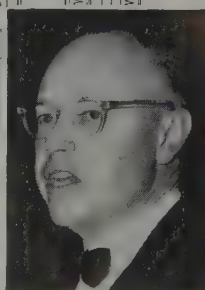
# THE NEXT PRESIDENT AND PUBLIC HOUSING

Barring the stalking possibility of a dark horse, the face of the next president of the US appears somewhere in these four pages. Members of the construction industry are bound to feel concern about this man's way of looking at the affairs of their own business. So H&H has searched the records of the would-be candidates from both parties. Considering the great scope and numerous problems of the industry, the search was not particularly fruitful. None of the candidates has expressed himself on the general economics of the industry, or (with the exception of Candidate Kefauver) on such particulars as the future of FHA, the growing importance of military and defense housing, or the relaxation of credit controls. The only phase of building which seems to be politically timely is public housing.

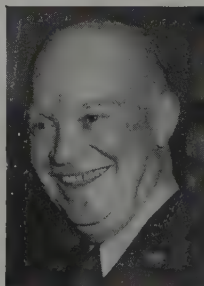
Here is how the candidates stand on that controversial subject:



*Sen. Robert A. Taft's home is a 15-room Greek Revival house on a 60-acre farm near Cincinnati.*



*Gen. Dwight D. Eisenhower recently bought a Pennsylvania farmhouse near Gettysburg.*



## REPUBLICANS

Republican politicians are absorbed in the neck-and-neck contest between General Dwight D. Eisenhower and Senator Robert A. Taft. Generally this is looked upon as a duel between the "liberal" and "conservative" elements of the party. When the spotlight is thrown on the issue of public housing, however, the contest takes on new proportions.

**Senator Taft**, regarded by many as the true champion of a conservative economic system, has made his reputation chiefly by his cautious approach to federal spending. Nevertheless, he has backed public housing. The Housing Act of 1949 bore his name and could not have passed without his support.

Some industry members, particularly mortgage bankers, explain that the Senator's support was a bit of political gambling, that he endorsed the bill only because he felt it politically expedient and counted heavily on its defeat in the House. (President Truman apparently shares this opinion. He told the National Housing Conference in Washington last month that Taft had turned against the legislation.) Senator Taft himself has defended his belief that federal aid for housing is justified. In a message to the same conference he wrote: "It is no reflection on private industry to say that it never has and probably never will meet the serious low-income problem in the housing field. The general theory that government has a duty to assist the lowest income groups . . . does not involve any departure in principle from that which we have pursued (for) 150 years." But he has indicated a possible retreat from his previous stand by insisting that control of public housing be kept at state and local level. He has further advocated that all "nondefense" government programs (he didn't mention public housing specifically) be "held down."

**General Eisenhower** has given no specific indications of his views on public housing. If he committed himself in 1949, while the debate was swirling through the halls of Congress (as president of Columbia University he was expressing himself at some length on more general issues), his opinion is not on record. In the absence of clearly expressed opinion, some speculation might be pertinent:

On the one hand General Eisenhower draws his most-publicized support from those "progressive"

Republicans who have consistently championed public housing legislation. An observer might conclude that they reflect Eisenhower's views on domestic policy.

But none of these backers has attempted to represent the General's opinion on this issue. And there is a not-quite-firm but consistent conviction among many interested observers—particularly the professional public housers—that Eisenhower stands solidly against the concept of housing built with federal funds. Generally this belief is based on his many public condemnations, while he was president of Columbia, of “paternalistic” government and the growing emphasis on “personal security”—such as his 1949 speech in Galveston, Tex. in which he said: “If all Americans want is security, then they can go to prison. They'll have enough to eat, a bed and a roof over their heads. But . . .

we owe it to ourselves to understand the nature of the times and not trade the principles that made this nation great for some panaceas dished out by a bureaucrat sitting in an easy chair in Washington.”

Not all Eisenhower's support comes from the public-housing-minded members of his party. W. Walter Williams, who manages his New York headquarters, is a Seattle mortgage banker. He professes no detailed knowledge of the General's views, but he is convinced that Eisenhower's “attitude with respect to sound business principles would be very similar to that possessed by those of us who are actively engaged in the construction and related industries.” Another industry member, who has had conversations with Eisenhower in the past, brings up the point that General Eisenhower has shown an opposition to subsidies of any kind.



*Earl Warren lives in the California gubernatorial Steamboat Gothic mansion at Sacramento.*



**Governor Earl Warren** of California advocates public housing as a “last resort.” He supported the present public housing bill “with minor modifications.” More recently, he has urged the Republican party to hold to its 1948 platform, with its recommendation for federal housing aid “where necessary.” Warren's own state, which enjoys a reputation of living under a balanced budget, has no state public housing authority, but under the governor's leadership it has established two postwar state-financed housing programs. One provides a revolving fund with which cities and counties can set up temporary housing facilities for veterans. The other permits the state to purchase surplus federal housing units from abandoned war centers and re-sell them to veterans and farmers.

**Harold Stassen** has made no pronouncement on public housing in his current campaign, presumably sticking to the views he expressed in the 1948 race. Then he declared himself in favor of public housing, but was opposed to any program in which the federal government would be the “landlord.”

At that time he called also for governmental help in “modernizing the building industry,” such as “backing for architectural and engineering advances in design and production.” He thought the government should take the lead in “lifting restrictive practices of some unions, and ending combinations of some material men and contractors, which together have prevented progress in housing comparable to progress in mass production.”

*Harold Stassen lives now in Philadelphia, but still owns this house in Minneapolis, Minn.*







Sen. Estes Kefauver grew up in this porticoed old house in Madisonville, Tenn.



Sen. Richard B. Russell's family homestead is a farm in Russell, Ga., a small settlement (pop. 150) near Atlanta.



Photos: Harris & Ewing; Acme Photo; Mike Shea; J. G. Zimmerman; Associated Press Photo; International News Photos.

Senator **Richard B. Russell**, the Southern Democrats' choice, is a deviationist from administration policies on civil rights, but has been a "regular" Democrat on many other matters—including public housing. Alabama Senator John J. Sparkman, who did much of the rear-guard committee fighting to get a public housing bill passed, backs Russell, noting that the Georgia Senator's "progressive" record includes support of public housing. Russell, however, bases part of his campaign on the need for "strict economy" in government.

## DEMOCRATS

Senator **Estes Kefauver**, whose supporters include Nathan Straus, long-time advocate of public housing and the first administrator of the USHA, believes that "it is not possible to meet the problem of housing for low income groups without direct federal aid." Senator Kefauver told H&H last month that the Housing Act of 1949 is "not wholly adequate, although it represents a long stride in the right direction."

The "chief modification" which the Senator believes is required of the Act is a provision for "extension of additional aid for co-operative housing to meet the needs of middle-income groups." This aid, he says, "need not be in the form of direct subsidy but in the form of guidance, encouragement and technical assistance."

In general, Senator Kefauver believes that the construction of public housing should be left to the localities. He offers one possible "exception" to this rule, however: "the construction of family-type housing for military personnel." He says: "Certainly the housing provided today for military personnel cannot be regarded, in many communities, as satisfactory. I believe that the matter is one which requires attention by the federal government—and a determination to raise standards of such housing as promptly as possible. Obviously, substantial modification of the Wherry Act program is indicated by its failure to achieve its avowed purpose."

Senator Kefauver also believes that government aid should be extended "toward the construction of so-called defense housing according to the same principles as all forms of government aid to housing." The government's emphasis, he says, "should be on the provision of housing of a character that will constitute not new slums, but permanent community assets." Emphasis should also be placed "on rental housing, rather than on the construction of homes for sale." "Careful studies" show that "veterans and others with families of uncertain future size and jobs of uncertain tenure would much prefer to rent. But more than 75% of the housing now being built is for sale. Government policy should be directed toward giving people a free choice—which in many communities, because of mistaken government policies of aiding chiefly speculative builders of small houses for sale, is denied them today."

The Senator expanded his criticism of government "aid" to speculative builders by declaring himself in favor of a "reorganization of the FHA to make it what it was originally intended to be, a government agency for the protection of home purchasers, instead of what it has become, a government agency to provide government-guaranteed loans for the construction of housing which yields fantastic profits to speculative builders."

Illinois' Governor **Adlai Stevenson** is a "draft" possibility, not an active contender for the nomination; consequently, he has taken no campaign stand on any issue. Such stands must be found in his gubernatorial record.

In August '51 Stevenson vetoed a bill passed by the state's general assembly which would have required a majority of voters of any Chicago ward to approve by referendum any proposed public housing project within that ward. Said Stevenson in his veto message: the bill "would enable an interested minority to organize the opposition of those who might be fearful of—or inconvenienced by—a proposed housing project, thereby blocking an improvement which would benefit the entire community."

Stevenson called the Housing Act of 1949 a "great opportunity to correct many of the worst conditions throughout the country . . ." Noting objections to the act, from builders he said: "You don't have to approve the principle of public housing or the idea of government subsidies for some at the expense of everyone to recognize that without public housing it is generally conceded that only a limited and unsatisfactory answer to the slum problem can be expected." However, he admitted, "the new federal Act, or any government subsidy, can never be the whole answer—the housing deficiency can only be met in the final analysis by all-out private building."



*Adlai Stevenson lives in Illinois' stately governor's mansion in Springfield*

*Averell Harriman donated Arden House, the family mansion in upstate New York, to Columbia University.*



*Sen. Brien McMahon, whose Connecticut home is not pictured here.*



*Sen. Robert S. Kerr was born in a log cabin; now, an oil millionaire, he lives in a mansion in Oklahoma City.*



Senators **Robert S. Kerr** and **Brien McMahon** are "Truman men." They voted with the Administration on the Housing Act as they have on most other matters. **W. Averell Harriman**, who many believe is the man with the presidential nod, told a convention of public housers last month: "The attempts . . . to virtually eliminate the provision of low-rent public housing for low-income families now living in slums must be vigorously opposed." Harriman also sounded what he called the "great new challenge in the field of housing" for the years ahead: ". . . We shall need to consider how we can best meet the needs of the people of moderate means—the people who have no need for public housing, but cannot pay the high cost of so much of the private housing being built today. We must find ways and means of bringing the prices of good housing down to levels they can afford."



# CUSTOM-SPECULATORS—builder and architect successfully introduce modern houses into a stronghold of conservatism



*Mature trees were saved wherever possible, as were clumps of young dogwood and birch. Long curving driveways, made necessary by the deep setbacks of the houses (see plan) are provided by the builder.*

LOCATION: Media, Pa.

GEORGE HAY, Architect and Land Planner

ARTERS BROS., INC., Builder

This story is all the better because it comes from Philadelphia, stronghold of traditionalism. It's the story of how a young builder, with a young architect, doubled his sales by:

1. Switching to contemporary architecture, though everyone told him that the area demanded "colonial."
2. Putting all his houses on well planned, \$2,700 half-acre lots, though everyone told him that his land costs were out of line.
3. Offering his customers their choice of extras and changes—at a price—though everyone told him he would lose money doing it.

## What's good enough for my father

Architect George Hay and builder Wallace E. (Bud) Arters could hardly have picked a tougher place to build their ranch house subdivision than Media. Just southwest of Philadelphia, the area has clung tenaciously to stone and brick colonial and Cape Cod houses, and a one-floor design was hooted at as a sales "monster." Builders and brokers alike mournfully warned that "Media isn't ready for new designs." But the young (Hay, 32. Arters, 35) team decided to go ahead after Arters said: "Everyone can't be out of step but Media!"

These were the goals:

- ▶ Development of a complete, one-character residential area
- ▶ Thought-out land planning, with largest possible lots
- ▶ A minimum of basic house plans with a maximum of changes permitted to the buyers.

## Costly land doubles house values

Because he was to do the land planning, the architect was given a hand in choosing the site, selected a 24-acre tract of partly overgrown meadow with scattered stands of hardwood and pine which sloped up 135' from a road along the westerly edge. The entire acreage has an excellent protected view across the valley to the hills several miles to the west and northwest.

The demands of the county and township planning commissions added to the site problems (no road grades above 10°, 100' frontage for each lot). Siting of houses for best use involved extra-long driveways. All this makes for expensive land (\$2,700 per lot before footings were poured), ordinarily out of proportion for houses in the \$15,000-\$19,000 range. But builder Arters says:

"The extra thousand dollars or so in each of these sites makes it possible for the owners of our \$15,000-\$19,000 houses to live in a \$30,000 style. The half-acre of land, the sweeping views, the privacy—all add up to a way of life our customers want, but can seldom find in their price bracket. If I take all this away, another \$1,000 added to the house itself won't replace it."

## Make the houses fit the land

Hay passed up any solar exposure scheme for siting the houses on the land in favor of a "lariat" plan that took best advantage of contours, existing trees and views. By angling the houses with the contours, the view from within them was enabled to go past, between or over neighboring dwellings. In most cases only a few



of the 37 houses are visible from any one location at one time.

Two basic houses comprise the whole development: a one-floor three-bedroom "rancher" and the two-bedroom expansion attic bungalow. Rather than freeze the design, the builder offered buyers a wide list of changes available at specified costs which could be made while the houses were under construction. All changes were under the supervision of the architect, for which he charged an extra fee. When customers wanted ideas of their own incorporated, Hay could quickly work out the details.

### Changes à la carte

Customers jumped at the chance to add their own ideas. Extra costs varied from nothing to over \$3,000, averaging \$700. One buyer who wanted two bedrooms and a bath on the second floor ran the cost of his house up to \$22,000. With basic costs between \$14,900 (bungalow) and \$18,900, the houses averaged \$17,275 with changes. Architect Hay explains the company's willingness to make changes to suit individual desires:

"We know that it costs money to make changes from the original plans, but in this price class we are dealing with people who are willing to pay for, and who demand, alterations. We have been told by several of our buyers that they had planned to build their own houses before they saw ours. Arters Bros., Inc. have become custom-speculators!"

*"Lariat" plan follows site contours. Provident bachelor Hay held back one lot for himself*

*Photos: Cortlandt V. D. Hubbard*







*Ground cover, rather than grass, will be used on steep slopes (left) to anchor soil. Fears of erosion were minimized when five-day rain early this spring did only negligible damage to unseeded, raw slopes.*



*Flagstone walks are easily fixed if soil settles*

Many items, long familiar to other housebuilding areas, caught Media's eye. Among them: floor-to-ceiling living room windows, shuttered pass-throughs from kitchen to dining room, two-way corner fireplaces and carports with extra storage space.

#### Land planning saves money

The builder estimates that on land planning alone, the architect saved him more than the entire cost of his fees. Taking advantage of every natural contour reduced earth moving to a minimum, and rolling Pennsylvania land teaches builders early that the less you use the bulldozer, the less trouble you invite from having upset the natural drainage. Where one awkward site lifted a house high out of the ground, Hay took advantage of this to put a game room and carport into the basement level, which added a premium to the sales price.

#### Builder loves architect, architect loves builder

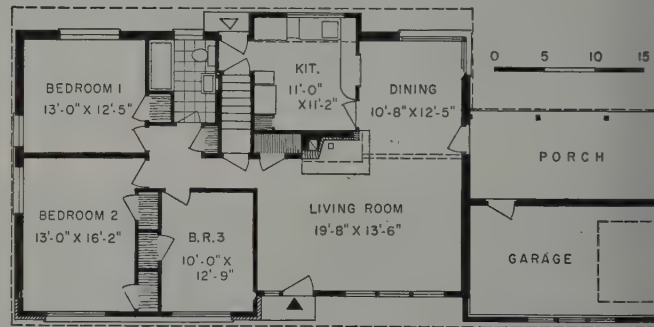
In this builder-architect duo both have benefited from their association. Though Arters has been a builder for 16 years, he had never built more than 23 houses in one year (1950-'51), but 1951-'52 saw the completion of the 37 in this project, plus seven others. And his houses are beginning to make him a reputation.

"I have heard people say, 'This looks like an Arters house,' or 'Arters is that ranch house builder.' That never happened to me while I was building the colonials."

For George Hay, the project has meant:

1. The establishment of a "key" account around which to build a sound, diversified practice
2. The opportunity to promote design standards in a community heretofore reluctant to change
3. An increase in both custom commissions and builder work.

With the present project nearing completion, the team is ready to move into their next, Hunt Club Hill. On 59 acres of similar hillside, Arters is going to build 49 houses in the same \$15,000-\$19,000 price class, with a heavy emphasis on the one-floor "rancher." If suitable less expensive land can be found, he wants to try to hit the \$12,000 market with a three-bedroom slab house with perimeter heat. Some areas nearby forbid slab construction and code changes may be necessary, but both builder and architect are sure that their future lies with better and better contemporary houses.



*Floor-to-ceiling fenestration is striking contrast to area's usual small-paned windows. Pennsylvanians like wallpaper, but newcomers prefer painted walls.*





*Rise in ground permitted the building of carport and sun porch at little extra cost. All houses have full basements.*



*Redwood siding was to have been stained various colors, but customers all demanded the same light red shade.*

*Other builders, regular visitors to project, were impressed with the public's acceptance of one-story design below.*



*Awkward site was turned into an asset through addition of game room and carport at basement level. Hill and trees immediately behind the house help to minimize height of front elevation, which is a full story higher than other houses.*

#### Cost breakdown

Land, water, streets, extra grading....	\$2,700
Excavating, backfill, planting.....	402
Footings & cement work.....	613
Lumber, millwork, insulation.....	3,053
Masonry .....	2,017
Carpentry & labor .....	1,876
Plastering & stucco .....	776
Heating .....	810
Plumbing, incl. cesspools & water heater .....	871
Electrical work incl. fixtures .....	330
Rough & finish hardware, medicine cabinet .....	162
Steel .....	136
Hardwood flooring .....	332
Tile work, kitchen & bath.....	299
Painting, papering & glazing.....	533
Drives & walks.....	415
State & local taxes.....	378
Equipment, range, kitchen cabinets, washer, snack bar .....	871
Architect, engineer, permits, financing, sales & misc. ....	686
Profit .....	1,640
Total .....	\$18,900



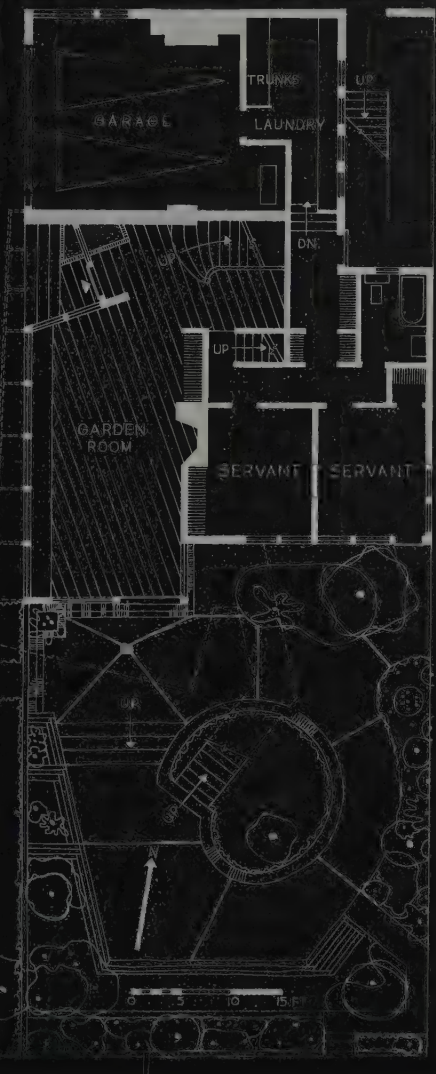






Overgrown vacant lot on south side of house (above)  
 Way to a new fenced and landscaped garden (left)  
 Stairs leading down from dining deck to play area

The new ground floor plan (below) boasts new  
 garage, service stair, multipurpose "garden room."



LOCATION: San Francisco

CLARK & BEUTTLER, Architects

THOMAS D. CHURCH, Landscape Architect

BETH ARMSTRONG, Interiors

A. F. MATTOCK & CO., Contractors

## RAZE, REMODEL... OR REBUILD?

**A case study: how to save a white elephant**

**of a house—and several thousand dollars**

The tendency to judge a house by its looks almost proved the death of this 50-year-old San Francisco mansion. Like an aging auto, its sound chassis had outlived its more visible exterior parts, and it was about to be turned in on next year's model. But with houses getting smaller and prices bigger, its generous space was obviously a bargain hard to duplicate in a new building.

So architects and owners answered the raze-or-remodel question handsomely by doing some of both—tearing the structure apart without tearing it down. When the bills came in, this major surgery proved far cheaper than mercy killing: the total renovation (\$9 per sq. ft.) cost less than two-thirds the cost of comparable new construction (\$14-\$16 at the time in the area).

The property the owners had bought was highly desirable: a big, three-story shingle house that had weathered the 1906 earthquake without a crack, built on a 50' x 100' lot; a blue-chip residential location on Pacific Heights; an unimpeded view over tree-lined park land to the Golden Gate.

**The old** house, however, had an inflexible plan common to its day, boxy rooms and small windows that denied occupants the full sweep of the panorama. It lacked a garage, and the first-floor kitchen and dining area were far removed from the second-floor living room. An adjacent open plot had deteriorated into a drab tangle of weeds and rubbish.

**The problem** was to provide, through either renovation or new construction, a place suitable for contemporary living for a young executive, his wife, son and daughter and two servants.

**The new** solution preserves the graceful formality of the old house without its many inconveniences. It has been completely opened on the interior so that space flows easily from one room to the next, from inside to outside through balconies and bands of plate glass that bring in sun, view and the new landscaping of a private garden in the once derelict lot.

On first appraisal, the owners had been inclined to agree with friends who urged them to tear down the old relic and start over again. But closer inspection revealed that the house, of an era when buildings were built to last, still had remarkably strong bones: studs as stout as 3" x 6" on lower floors, 4" x 14" floor timber over the wider ceiling spans. The architects recommended remodeling on the basis of obvious economy, the proved durability of the structure, and the possibility of adapting the existing layout to their clients' specific requirements.

The owners had the courage to approve stripping the skeleton of virtually everything but floors, roof and central stairway and building a new house on the old framework. Broken down into major items (cost figures available are indicated p. 144) this seven-months undertaking consisted of:

► Measuring all rooms and drawing up complete floor plans to work from. (Old building plans were lost when the city's records were destroyed in 1906.)

Photos: Roger Sturtevant; Pirkle Jones

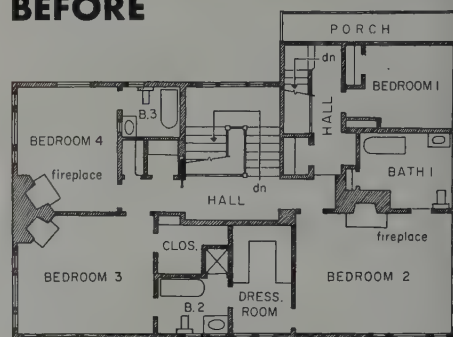


- ▶ Combining old ground floor storage rooms, installing a new floor slab and overhead door to create a two-car garage (\$2,500).
- ▶ Knocking out a large number of interior partitions on all floors, finishing new and old walls in plaster, painted birch or lacquered fir plywood.
- ▶ Incorporating 12 new steel beams and a handful of pipe columns to carry the existing structure over new open planning.
- ▶ Ripping old shingles and sheathing off the exterior, replacing them with 1" fir sheathing and vertical 1" x 6" stained redwood siding.
- ▶ Cutting out some of the old exterior wall studs, substituting heavier wood posts to carry larger plate glass window openings on all floors.
- ▶ Removing the old roof balustrade and cornice, framing out a new 6' overhang and fascia, regravelling existing roofing, reducing the height of protruding stacks and vents.
- ▶ Adding two balconies (\$2,750), outside stairs to the new garden and service entrance (\$875).
- ▶ Introducing new bathroom, kitchen and laundry equipment and plumbing lines (\$4,158), flashing, gutters and downspouts.
- ▶ Replacing all old flooring with 2" oak and fir planks, tile and linoleum (\$965); new stair treads and risers, cabinetwork, doors, window sash, sound insulation between bedrooms. The painting contract totaled \$3,470.
- ▶ Installing a new 150,000 Btu hot-air furnace in the garage and adding new ductwork to the old system (\$1,600). Rebuilding of old fireplaces \$2,650.

Pirkle Jones



## BEFORE



THIRD FLOOR

**THIRD FLOOR:** A back bedroom became a new bath-dressing area off the master bedroom, with ample central and perimeter storage.

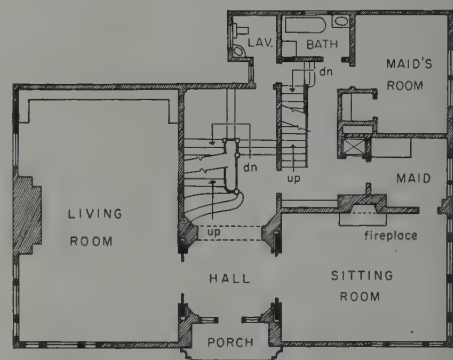
▶ The four bedrooms were rearranged to provide bigger windows, more closet space; a balcony was added for sun and garden view. (Note new steel beams above, indicated by dotted lines in plan.)

▶ Two baths and a large linen closet replaced single bath, small closet.

**SECOND FLOOR:** Dining and kitchen areas were moved from the ground floor and united with hall and living room. Result: easy circulation, more space and fenestration. A new dining porch leads out and down to garden. (Note steel beams that carry structure above.)

▶ Service stairs were removed to the outside and rear, providing private access away from the front of the house.

▶ For guests, a powder-room-coat-closet was added off the hall.

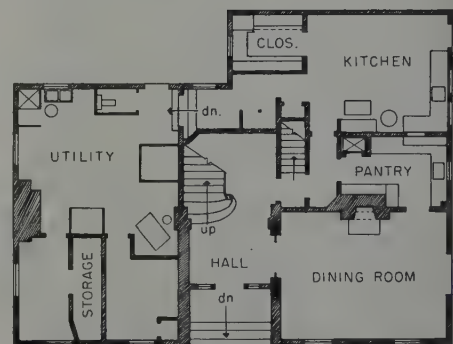


SECOND FLOOR

**FIRST FLOOR:** A two-car garage was made possible by combining several old storage rooms, installing an overhead door and moving tree, fireplug and stop sign to permit access.

▶ A "garden room," replacing the old dining room, extends into the new front entrance hall on one side, the garden on the other.

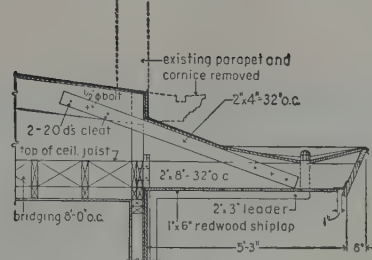
▶ The two maids' rooms and bath were dropped down from the second floor to occupy the less central first floor rear.



FIRST FLOOR

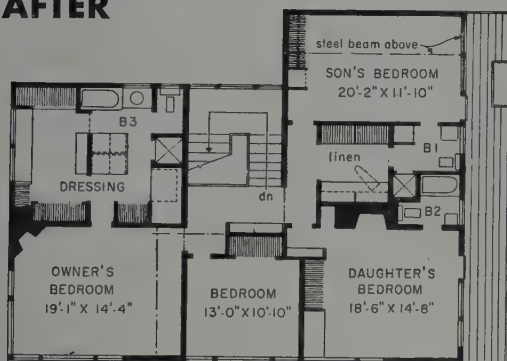


Photos: Roger Sturtevant

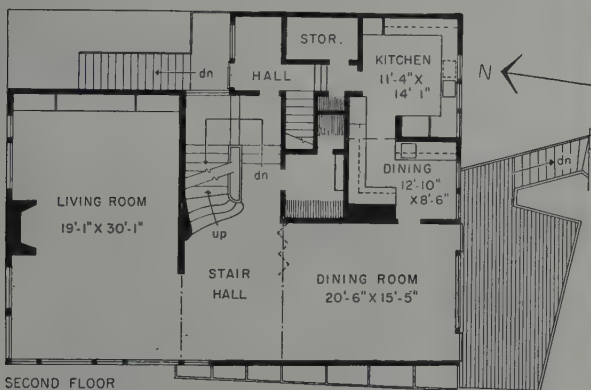


**THE NEW FRONT (WEST) ELEVATION** was cleaned up by removing roof balustrade, extending overhang, replacing main entrance and porch with wider, deep-set entry highlighted by glass and plant box. Horizontal lines of new continuous windows, garage door, trellis and siding help tie the tall house to its site. Note new vertical redwood siding, bedroom, dining room balconies.

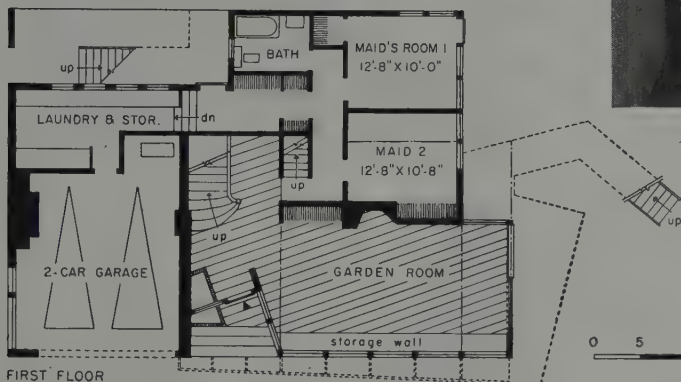
## AFTER



THIRD FLOOR



SECOND FLOOR



FIRST FLOOR



**NEW "GARDEN ROOM,"** converted from former dining room, opens through sliding glass doors to garden beyond. High strip windows for street privacy may be seen above the long storage wall at right. This area serves as sitting, hobby and music room and a place for the owner's children to entertain their friends as they grow older.

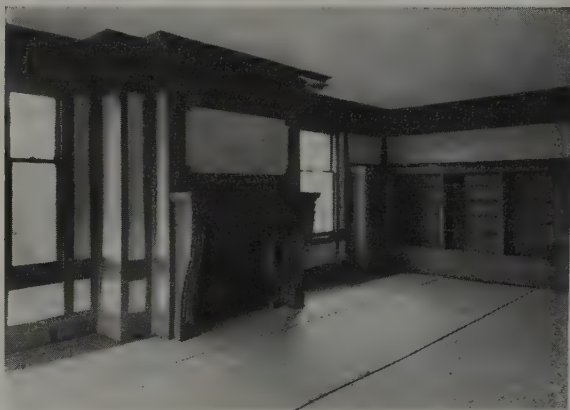




**VIEW 1:** North and west views from new living room

**The second floor,** shown on this and opposite pages, underwent a striking renovation. With the removal of the bottleneck central hall and its arches, doors and front balcony, the entire floor was thrown open from end to end. Living, dining and kitchen areas are now in a much more open and workable relationship to each other and to the new dining alcove and the dining deck overlooking the garden. In the refurbished living room (*above*) new exposed 4" x 4" posts permit wide fenestration towards park and bay; a low window bench and continuous carpeting extend through the hall area into the dining end, helping to integrate the whole floor visually. A new fireplace front was applied to the old chimney breast and flue; birch bookshelves, cabinets and bar were built in along one wall. The old dark stair hall is now lighted by full-width windows, and heavy, ornate stairs were replaced with simple oak treads, risers and banister. The dining end (lighted by a glass wall opening on its private deck and by indirect light coves) can be partially closed off by a folding partition of birch plywood sections piano-hinged together. Interior color scheme: gray-green, blue-green, light yellow.

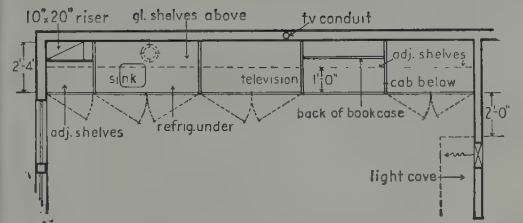
Photos: (below) Pirkle Jones; (others) Roger Sturtevant



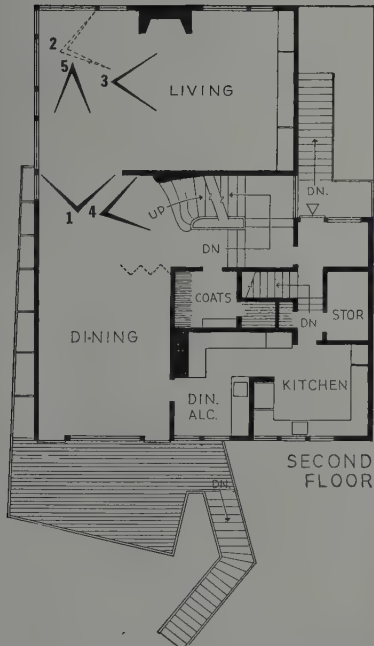
**VIEW 2:** Old living room had small windows, dark wood paneling, heavy molding and mantel, was separate from hall, kitchen and dining room.



**VIEW 3:** Library end of main living room



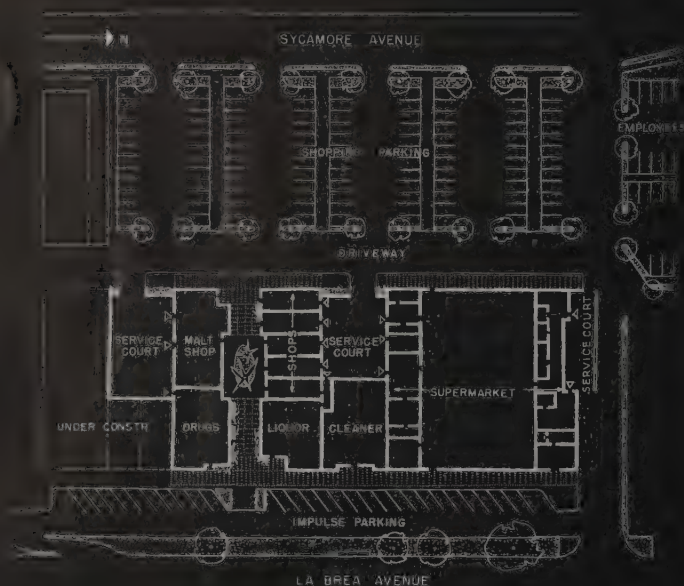
**VIEW 4:** New stair hall, below, has big windows on all three floors, greatly simplified wall, steps and banister treatment.



**VIEW 5:** From living room, space flows uninterrupted through hall and dining area.







**SECONDARY FRONT**, seen from the major parking area behind the stores, has inset service courts for removal of refuse and deliveries to stores grouped around them. This practical solution saves the expense of freight ramps or tunnels, keeps loading and unloading out of shoppers' way and vice versa. Courts are hidden from customers' view by high landscaped walls and gates. Supermarket, which requires most service area, was placed at end of layout where an additional service alley could be inset.

**MAIN FRONT** at night is a brightly lighted showcase that lures late shoppers. First units built, supermarket and restaurant, may be seen at right. In front of stores is a secondary street for traffic circulation and "impulse" parking, separated from main traffic artery by grass island strip at right. Floor area of completed stores (plan, left) totals 13,425 sq. ft.



## A SHOPPING CENTER—a study for builder-developers

## planning expandable neighborhood retail districts

LOCATION: Los Angeles

ROBERT E. ALEXANDER, AIA, Chief Architect

BALDWIN HILLS CO., Owners and Developers

HERBERT BARUCH CO., Chief Contractors

MERRILL W. WINANS, Landscape Architect

Baldwin Hills Village, most talked about and most widely praised of prewar model communities, is now adding a shopping center which combines new and time-tested practices in a way that should interest both architects and developers. These include:

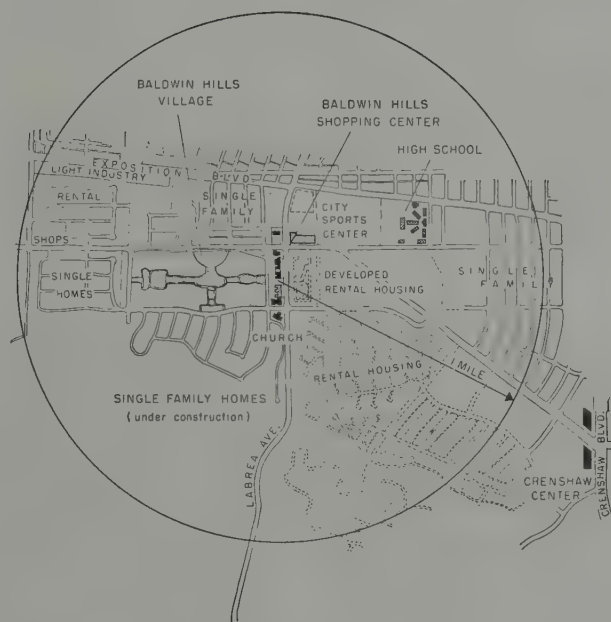
► A two-front plan—one front to attract passing motorists from the boulevard, one to serve Baldwin Hills and other nearby residents.

► A three-section parking system—one for passersby, one for local residents, one for employees.

► Interior courts to hide the service areas for each group of stores behind neat walls and gates (these courts are cheaper than ramps or tunnels).

► Anchor establishments at either end—a movie and a supermarket—to draw customers and keep them circulating past the smaller stores between.

► An ingenious new design for open, louvered marquees that lets in light but keeps out rain.



The center's retail trade area (above) includes an estimated 25,000 persons (with a high average annual income of \$6,000-\$7,000) living within a 1-mi. radius in several large 608 rental housing projects and single-family home developments. Present focus of regional shopping, and a large factor in considering Baldwin Hills's retail expansion, is the giant Crenshaw Center only 1¼ mi. to the southeast. Here the big May Co. and Broadway department stores handle most of the area's demand for heavy durable goods, and a large supermarket and other outlets satisfy the immediate vicinity's lighter merchandise needs. Other more limited competition: a small retail center 1½ mi. west of LaBrea Avenue, a combined drugstore-office building under construction diagonally across from the Baldwin Hills center. The area, however, has a relatively high population density and is still under development. In the sketch, Culver City, Santa Monica and the ocean are to the west, Los Angeles Civic Center 8 mi. (30 mins. by bus and trolley) northeast.

The shopping center on these pages is owned and operated by the Baldwin Hills Co., whose Baldwin Hills Village across the street to the west has been hailed as one of the most progressive planned communities in the country. (Controlling interest in the company is owned by the estate of Anita Baldwin, daughter of California's famed land tycoon and horse fancier "Lucky" Baldwin.) The village, conceived in 1938 and started in 1941, contains 672 rental units in two-story garden apartments oriented around patios and parking courts, with a long, landscaped mall extending down the middle of its 80-acre expanse. It was planned for middle income families and plenty of space (seven families per acre, with only 15% land coverage), has been praised as one of the most logical, attractive and livable rental community solutions since Sunnyside Gardens, Radburn and Greenbelt. Said Lewis Mumford: "a fundamental advance in planning and architecture. . . every aspect of its physical development has been thought through." It was sold in 1949, at a comfortable profit, to the New England Mutual Life Insurance Co. Two of its architects, Alexander and Wilson, have lived there themselves and are the chief creators of the later shopping center.

*Photos: Julius Shulman*



The center is of the so-called "two-front" type: (1) a neon-decked glass showcase on the main artery to draw customers into its parallel private drive and off-street parking and (2) a less showy but more simply presentable front on the main parking area. (This is not "the rear," the architects hasten to add, but "the other front.") Unless they go through the back door of the supermarket, most shoppers pass through the central arcade from one front to the other and are thus exposed to the attractions in the smaller arcade shops.

The whole 1,800' block is broken by a central mall (not yet built) along the east-west axis, and a secondary arcade, to conform with local ordinances requiring firebreaks. More important, these pass-throughs permit easy circulation from the major parking area to the front, and boost total store frontage with additional interior frontage

which can be leased to small, low-volume retail or service shops, such as beauty parlor, florist, gift shop.

In fact, however, the center's big failing to date is lack of this foot traffic through the present arcade, which makes life hard on the arcade shops, and on the center's owners, who lease on a percentage of each shop's gross income. Baldwin Hills Co. expects that further development along the lines of the master plan (*see next page*) will bring more trade to the smaller stores. Baldwin Hills Co. first secures a lease from the tenant, then builds and maintains his store space. It was necessary to plan the center in units, to be built one at a time in pace with the demand. (As Gross-Morton say, "Empty stores can murder you; it's better to have vacant land than vacant stores.") It seems to boil down to the developer's old chicken-and-egg headache: which comes first, more shoppers or more stores?



*Arcade gives the center additional store fronts, serves as a link between the two parking areas and qualifies legally as a firebreak.*



**PARKING** is a three-part system (facilities are provided for 650 cars, 300 of them directly in front of or behind the existing stores):

► A major parking area behind the stores for regular "heavy duty" shoppers buying groceries or making stops in several of the center's shops. Parking banks are 75' on centers, with 10' walks and planting strips in between. The area between the theater and existing stores is also asphalted to provide extra parking until such time as it is occupied by more shops.

► An "impulse" parking strip along the main artery of LaBrea Avenue, but separated from it by a landscaped "island." This strip was designed to accommodate in-and-out, one-purchase shoppers lured in by the center's signs, windows and the prospect of finding a convenient parking place.

► An employee parking lot behind the service station, to keep store workers from taking the choice parking locations directly behind the stores.

**1. Drive-in restaurant**, on a separate 1.8-acre site across Rodeo Road, is a highly popular eating place which draws much outside trade. Cost: \$260,000, plus a recent \$30,000 for 75 more seats in the dining room. Lease: 20 years. Architects: Lewis E. Wilson and Wayne McAllister.

**2. Service station**, in an excellent corner location, does a whopping big business, even for Los Angeles, pumping an average of 40,000 gal. per month.

**3. Supermarket**, owned by the Fitzsimmons grocery chain, does more business in one month than the theater (below) does in one year. Together with the drive-in, it totals a gross volume in excess of \$2½ million yearly. The "key" high volume store, it was the first building completed (in 1948), at a cost of \$220,000. Lease: 20 years. Architect: Lewis E. Wilson.

**4. Arcade and small shops** include: flowers, gifts, shoe repair, barber, beauty salon, liquor and spice shop, dry cleaning and laundry, malted milk shop and drugstore. Cost, including landscaping: \$161,000. Leases: 5 to 10 years. Architect: Robert E. Alexander. Only the laundry and dry cleaning shop is reported doing an above-average business so far.

**5. Proposed stores:** a 5- & 10¢ store is contemplated, and negotiations are under way for a "junior" department store.

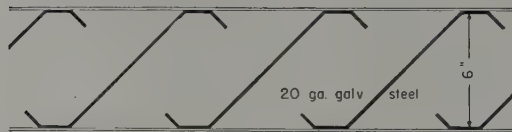
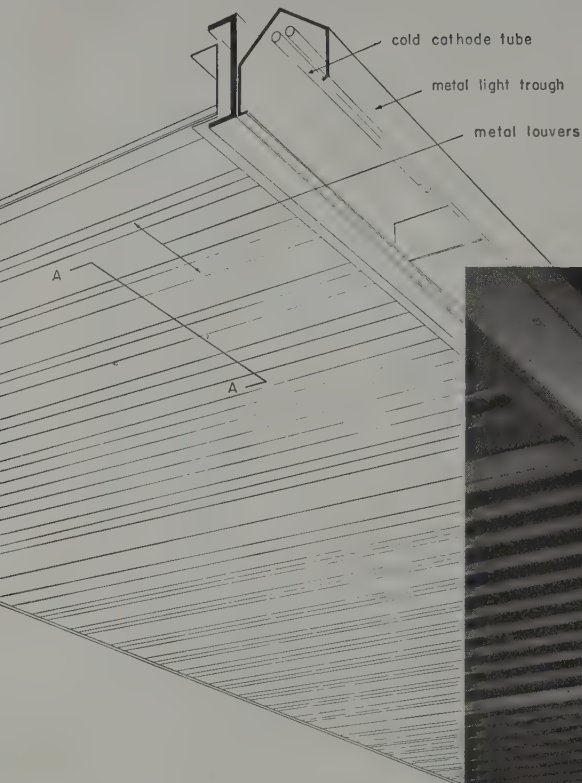
**6. Theater:** finished in the summer of 1949 as the southern "anchor," this big (1,725-seat) house is unable to get first run pictures right away, as originally intended, must wait until two weeks after release. And as in the case of other theaters, television has also been blamed for low attendance figures. Pining for lack of patronage, it reduced prices 18 months ago, is packed on week ends but still not making much more than a break-even figure. Cost: \$140,000 (excluding seats and furnishings). Lease: 20 years. Architect: Lewis E. Wilson. While market and restaurant together gross \$2½ million, the theater plus all other shops do some \$350,000 to \$400,000 annually.

**7. Proposed shopping center additions:** across LaBrea Avenue from the present 8-acre site and linked to it by overhead foot bridges, the Baldwin Hills Co. contemplates developing an additional 15 acres into a spiral-type department store, outdoor restaurant, plant nursery, patio furniture store, natatorium. For shoppers' children, a "Toy Town" supervised by the department store will offer miniature carrouseles, Ferris wheels, toy trains and pony rides.





# BALDWIN HILLS SHOPPING CENTER

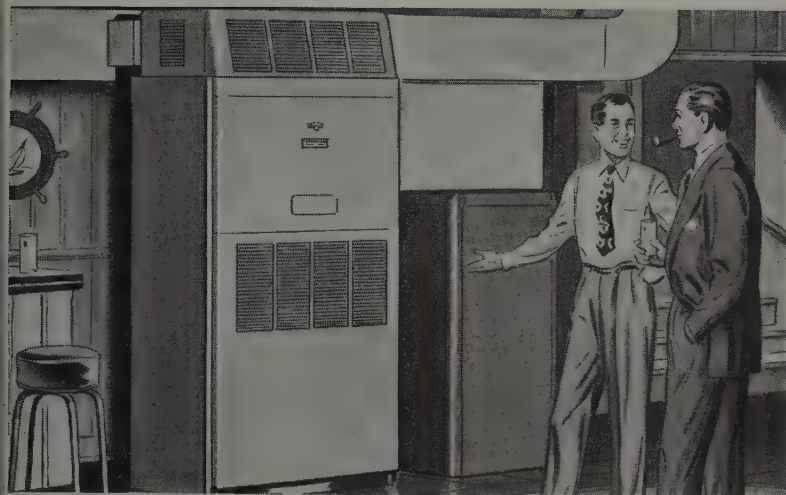


SECTION A-A

One of the most novel and useful design details in the center is the long, 9'-wide louvered marquee on the stores' main front. To get away from the usual awnings or fixed opaque overhangs, the architects designed this marquee high enough above the sidewalk to keep it from obscuring view and light, yet low enough to eliminate reflected glare on the store windows. The aluminum louvers slope up toward the north, letting in north light but keeping hot south sun off shoppers and merchandise, especially the market's perishable fruit and vegetable displays. Along the outer edge of the marquee, fluorescent strip tubing lights the sidewalk and complements the center's dramatic over-all lighting as an added come-on to night shoppers. Each louver has its individual gutter, crimped into its lower edge, to carry rain water to the outer brim of the overhang.



# NOW! Summer comfort for any home— at a surprisingly moderate cost!



With hot air heating systems, a Frigidaire Air Conditioner can be placed beside the furnace and connected to the warm air distribution ducts. A damper directs return air to the air conditioner, by-passing the furnace during the summer.



With other heating systems—such as radiant heating—Frigidaire Air Conditioner is installed in a concealed central location. Short ducts lead to the rooms, and cooling for each may be controlled as desired. This plan is ideal for single-story homes.

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*Frigidaire reserves the right to change specifications,  
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Yes, it's easy to give new or existing homes the big advantage of air conditioned comfort! One compact, completely self-contained Frigidaire Air Conditioner does the job—furnishes a plentiful supply of dust-free, dehumidified air at temperatures to suit the season.

Installation cost is remarkably reasonable—even for existing structures. Operating cost is also low, for these Frigidaire-designed and built units give years of thrifty, trouble-free service. 3, 5, and 7½-ton models available.

#### Look at these important Frigidaire advantages

**Frigidaire Compressor** is precision-matched with cooling unit and controls to give years of thrifty, trouble-free service.

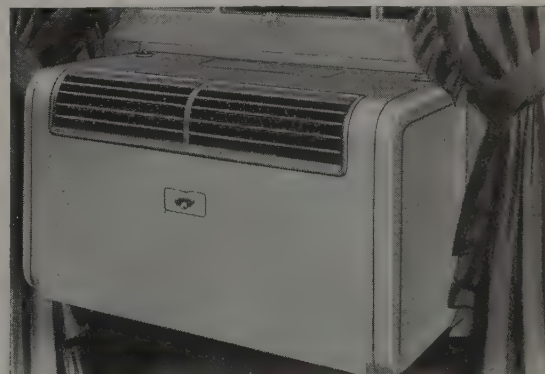
**5-Year Protection Plan** on all models. Includes a 1-year warranty on the entire conditioner and a 5-year warranty on the compressor mechanism, including the motor.

**Cleanable filters** are scientifically made of expanded aluminum to "sweep" air really clean of dust, dirt, soot, pollen.

**Multipath Cooling Unit** assures fast, even cooling. Precisely metered flow of refrigerant—in just-right amounts—provides efficient use of entire cooling surface.

**Just two controls**—"On-Off" switch and simple temperature dial—permit finger-tip control of the "weather."

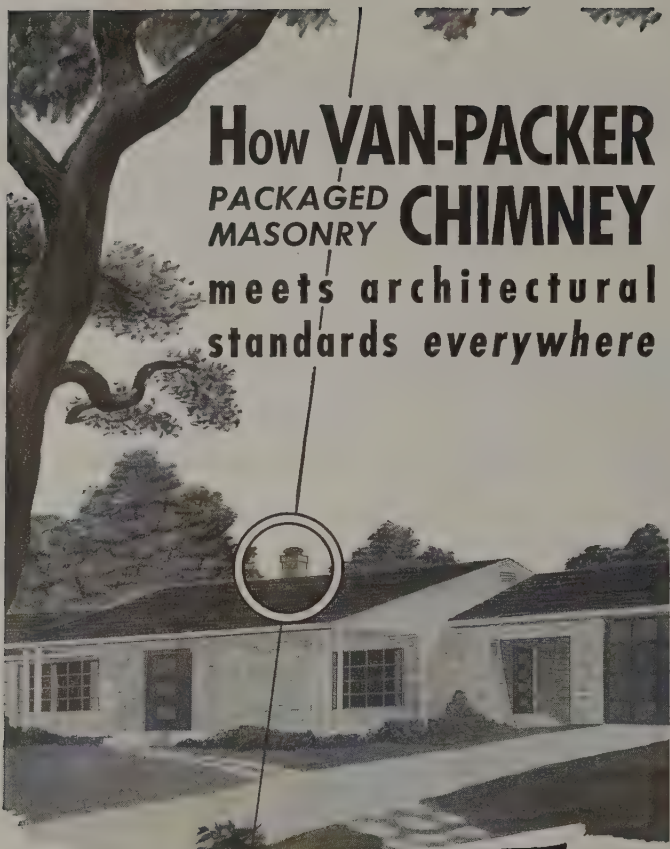
For full details on home installation of Frigidaire Air Conditioners—as well as their many other applications—call your Frigidaire Dealer. Look for his name in the Yellow Pages of phone book, under "Air Conditioning" or "Refrigeration." See Frigidaire Catalogs in Sweet's Files or write Frigidaire Division of General Motors, Dayton 1, Ohio. In Canada, Leaside (Toronto 17), Ontario.



**Frigidaire Room Air Conditioners**, in three models, are compact, quiet, need no plumbing, are easy to install. Model ARO-100A (shown) has Automatic Selective Cooling feature.



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20' Floor Suspended			10' Ceiling Suspended		
Coal	250,000	B. T. U. PER HOUR	Coal	150,000	B. T. U. PER HOUR
Oil	300,000		Oil	200,000	
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The Van-Packer Masonry Chimney handles the maximum heater output for most home installations. Van-Packer develops sufficient draft for heating plants designed to serve homes up to 10 rooms in size. Makes possible the central location of the heating plant—where heat runs are shorter and fuel savings greater. This means Van-Packer can contribute to architect planning and actually provide a more flexible house design at lower cost. Van-Packer has been tested and approved for all fuels under the rigid standards of Underwriters' Laboratories, F. H. A. accepted. Double sealed at every joint with acid-proof cement and joint band. Has a chimney wall of insulating vermiculite concrete and a fire-clay tile liner equal in insulating value to 24" of brick or 70" of ordinary concrete.



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## ADVICE TO BUILDERS

(continued from page 115)

### 6. How to reduce noise

Noise is more of a problem with cooling than with heating. In addition to the noise of the blower, there is a motor and a compressor. A larger volume of air is moved through the ducts in summer than in winter and duct noises are more of a nuisance. In addition to equipment room noise, there is fan noise outside the house if a forced draft cooling tower is used. When air cooled condensers are used, there is a fan noise problem to overcome.

To keep noise away from living and sleeping areas, equipment rooms can be located next to kitchens or in the service area of a house, or in a basement. If put in the center of a house, equipment rooms can be lined with acoustical material. When grilles are put in equipment room doors for return air, a baffle can be used to reduce the amount of machine noise which escapes. To reduce the sound of equipment from penetrating through supply ducts, they can be lined with acoustical material.

### 7. Controls

As in heating, an efficient control system is an absolute requirement. Nearly every builder who has used air conditioning advises: "Get the best controls possible and put the controls in a convenient place so people won't have to go to the equipment room to reach a switch." Thermostats should be on inside walls, free from direct sun and from drafts. A combination summer-winter thermostat can be used, or two separate controls. If the cooling system is oversize, a separate humidostat is needed. An efficient control system is essential to smooth operation of the system.

### 8. Where to locate cooling towers

These should be placed where fan noise from the induced draft type will not be objectionable. Spray from both types of towers may drift and annoy neighbors. A builder buying metal towers should be sure unusual minerals are not present in the local water to cause towers to corrode rapidly.

### 9. Where to locate gas-fired water heaters

Engineers advise that gas-fired water heaters and furnaces should be located in an equipment room so that if the pilot light goes out and gas escapes, it cannot get into the main supply ducts of the cooling system and escape into the house.

### 10. How to handle zoning

A house can be zoned so that only part of it is cooled from a central system at one time but this is a tricky operation. Experience has shown that people soon refuse to shut off each register in the living area before they go to bed at night (to get cool air in bedrooms) and each morning turn off all bedroom outlets. The correct solution for zoning is a main damper that throws the air to one zone or another.

### 11. What every buyer should know

Buyers must be carefully instructed as to how to get most efficient results from air conditioning. Some men who work in offices where temperatures are kept at 75° believe a residential unit should deliver a like temperature on the hottest days. They will need to be told what their system will do, and that operating costs will increase if low temperatures are maintained. Buyers should be instructed how to get their operating costs down and how they can drain their cooling tower systems in the fall without calling a service man. They should understand what their guarantee means and that a service man cannot make unnecessary trips.

### 12. Problems of a model house

No model house, no matter how well it is air conditioned, can handle enormous crowds in July or August and demonstrate efficient cooling. One solution is to put in an oversize system. Another is to limit the number of visitors at any one time.

A NEW CITY..... **LEVITTOWN, P.A.**

AGAIN  **BELL & GOSSETT** BOOSTER PUMPS

HELP **YORK-HEAT** DO THE JOB

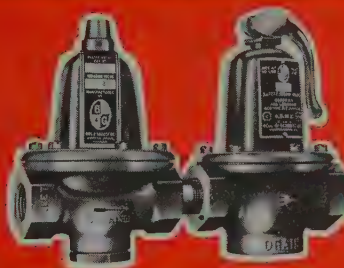


#### B & G HYDRO-FLO PUMP



The Bell & Gossett Booster is the heart of York-Heat's radiant heating system. This motor driven pump circulates hot water through the heating system instantly when needed and shuts off the supply when the need for heat is satisfied. The Bell & Gossett Booster is mechanically dependable and automatically controlled by the room thermostat.

#### B & G DUAL UNIT VALVES



This Bell & Gossett combination relief and reducing valve is installed in the heating system to protect against excessive pressure in the boiler. The relief unit is not a "pop" type valve, but is diaphragm operated for more power during opening and closing of valve. Tested by National Board—ASME stamped.

The Bell & Gossett Hydro-Flo System provides radiant heating at its best. It is a *forced hot water system*—which means that the heat supply is always under positive control. The temperature of the circulating water is automatically modulated to meet every change in the weather. Even in spring and fall, when only a little heat is needed, indoor temperature is kept at the comfort level. No overheating to cause fuel waste... but always plenty of heat when the thermometer hits bottom.

A PRODUCT OF BELL & GOSSETT CO., MORTON GROVE, ILLINOIS





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You, too, will find that somewhere, in every house, in every building there are places where SOSS INVISIBLE HINGES are an absolute necessity... IF we are to keep in step with the demands of contemporary architecture for flush, smooth, streamlined surfaces.

In fact, this trend has reached a point where it is no longer possible to classify a building as "modern" unless it includes Flush Doors hung on SOSS INVISIBLE HINGES.

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"The unobtrusive quality of the SOSS hinge lends itself beautifully to contemporary architecture."

Very truly yours,  
*Celestyn Wisniewski*  
Celestyn Wisniewski



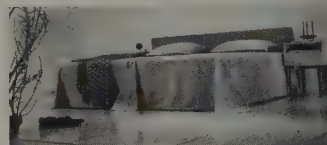
**SOSS**  
INVISIBLE  
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SEE OUR  
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SWEET'S

## REVIEWS

**THE HERMAN MILLER COLLECTION.** Herman Miller Furniture Co., Zeeland, Mich. 116 pp. 11 x 8 1/2". 200 illus. \$5

Revealed in the white space and between the lines of this furniture fact-and-picture book is the widespread acceptance of good modern furnishings. Many items in Herman Miller's line, regarded a few years ago as upstart, are contemporary classics. The most renowned piece, Charles Eames' molded plywood chair, is made by Herman Miller. (It is a standard gag in building magazine circles that one architectural photographer totes two props in his station wagon: a potted rubber plant and an Eames chair.) The other mainstay of the Herman Miller collection is the George Nelson storage wall.



Above: one headboard spans two beds  
Below: Charles Eames's cocktail table



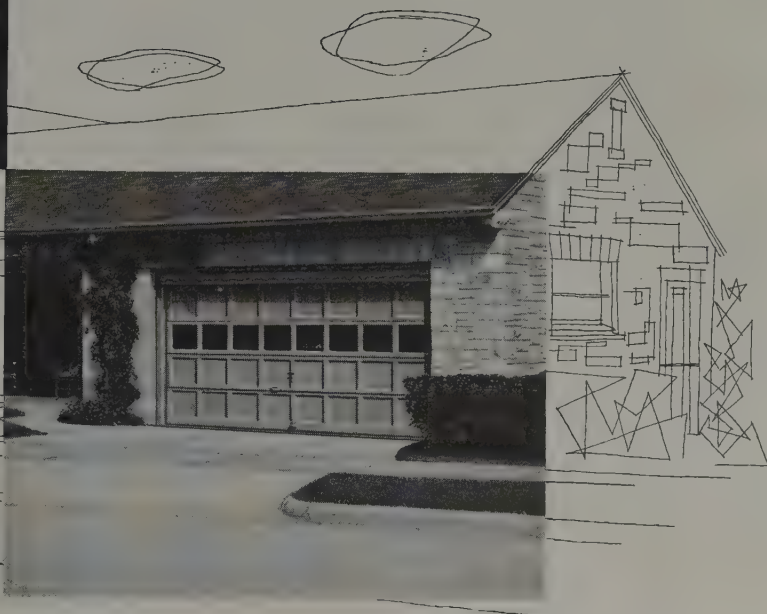
The current catalogue has been updated to cover all the pieces designed by Nelson and Eames for Herman Miller as well as some occasional pieces by Isamu Noguchi and Hvidt-Neilsen. Impressive biographies of the designers are included. The forms are sophisticated but utilitarian, and the items are grouped logically according to use.

The chapter on storage is divided in two parts. The first pictures the basic series of correlated case pieces by Nelson and built-in storage wall parts are described in the second half. Our changing concept of bedroom furniture is reflected in the sleeping section. Gone is the dormant "suite," replaced here by the basic pieces for sleeping, storage and dressing. The dining pieces are planned for flexibility in today's living dining areas. Chairs, benches, and tables, radio and TV cabinets comprise the comprehensive group labeled leisure. The two sections on work indicate the practical demands being made on desks and storage pieces for homes and, conversely, the homelike warmth required in office furniture.

The book is to be commended for its clear presentation of so diverse a furniture group. Although the layout trails off the beaten path, the reader will follow willingly. (Continued on page 162)



car-housing  
**DOORS** by  
**RO-WAY**



**progress hand-in-hand with automotive engineering**

New models, new features, new engineering achievements in Ro-Way Overhead Type Garage Doors have constantly gone hand-in-hand with the progress of the automotive industry. Today's Ro-Way Doors for the garages that house America's cars, trucks and buses are as advanced as the vehicles themselves.

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- 1 TAPER-TITE CLOSURE**—Vertical tracks taper away from jambs at an angle of  $\frac{1}{4}$ " per door section. In "down" position, door is snug-tight against the weather.
- 2 SEAL-A-MATIC HINGES**—of graduated height, guide the closing door tightly against side and head jambs. On opening, hinges instantly free the door from jambs to provide easy, frictionless operation.

No other overhead type door offers so much. That's why so many architects, builders and owners look to Ro-Way for the most advanced garage door engineering . . . for residential, commercial and industrial installations:

Nationwide sales and installation service.  
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for nearest Ro-Way distributor.

ROWE MANUFACTURING CO., 904 Holton Street, Galesburg, Ill.

SEE OUR  
CATALOG IN  
SWEET'S



*there's a Ro-Way for every Doorway!*



---

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another **HOMASOTE FIRST**— *designed to reduce the cost of building*

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## Three years of research and field testing are back of these Nova Roller Doors

Here are the most practical roller doors yet developed. Simple to install, easy to operate, and *economical in every sense*—these high quality, hollow core doors are light, strong and warp-resistant. Gone is all the expensive, overhead hardware—always difficult to install—always noisy. Two rollers revolving on pins act as guides at the top; two vulcanized rubber rollers carry the weight of the door at the bottom—through simple floor guides. There is no floor track. All hardware except floor guides is installed at the factory. Each door—Closet or Passageway—comes complete in one carton. In 30 minutes' time one man makes the installation.

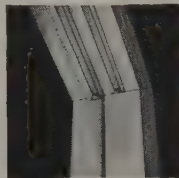
## CLOSET DOORS . . . . .

A closet or storage space may be one of the standard sizes—or extend the width of the room. Two or more doors enclose it entirely. Instead of exposing only part of the interior, as with a swinging door, you have full and easy access.

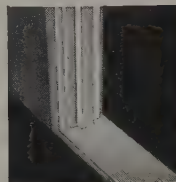
*Nine standard opening sizes: 32", 36", 40", 48", 56", 60", 72", 84" and 96".  
Five standard heights: 6'0", 6'6", 6'8", 6'10" and 7'0".*



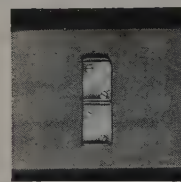
Revolving roller guides operate in head track; vulcanized rubber rollers run on finished floor.



Head tracks are accurately machined for perfect operation of revolving roller guides; side jamb is routed to receive the door.



Passageway door slides easily into wall pocket.



Simple floor guides, installed flush with finished floor, eliminate need for floor track.

## PASSAGEWAY DOORS . . . . .

Each comes assembled in its wall pocket, ready to install for either plaster or dry-wall construction. *Five standard opening sizes: 2'0", 2'4", 2'6", 2'8", 3'0".*

Both Passageway and Closet Doors are hollow core flush doors, 1½" thick, regularly sold in unselected gum, paint grade and in select White Gum, and Birch, stain grade. Other faces on special order.

We urge you to write today for the full details. *Kindly include the name of your lumber dealer and address your inquiry to Department 31A.*

A Novasco Product

**NOVA SALES**  
TRENTON 3, N. J. *Co.*



A wholly owned subsidiary of Homasote Company—manufacturers of the oldest and strongest insulating-building board; wood-textured and striated panels; ⅝" underlayment for ⅜" linoleum and wall-to-wall carpeting.



**A NEW CITY..... LEVITTOWN, PA.**

**A NEW HEATING PROBLEM... 3 SIZES OF HOMES**

**AGAIN YORK-HEAT GETS THE JOB**



**COMPLETE  
HEATING  
PLANT**

**HOT  
WATER  
HEATER**

**ALL IN  
27" x 30" x 36"  
CABINET**

**QUALITY  
BUILT  
with  
QUALITY  
PRODUCTS**

York-Heat's Levittown Table Topper provides the heat and hot water for all the homes—large, medium, and small—in the new Levitt & Sons housing development at Levittown, Pa. This compact unit has an output of 90,000 B.t.u.'s per hour and will deliver 3 g.p.m. of domestic hot water for 5-minute draw. All controls for radiant heating can be housed in cabinet. Also available for hot water radiation. These are quality built with quality products—see following pages.

York-Heat's Levittown Table Topper is available to all builders for 1952 construction at an amazing low price—made possible through mass production. Send coupon today for details.

**LOW  
PRICE**

**YORK  HEAT**

**YORK-SHIPLEY, INC.  
York 5, Pa.**

Please send complete data on York-Heat's Levittown Table Topper for  
☐ Radiant Heat ☐ Hot Water Radiation.

Name.....

Address.....

City..... Zone..... State.....

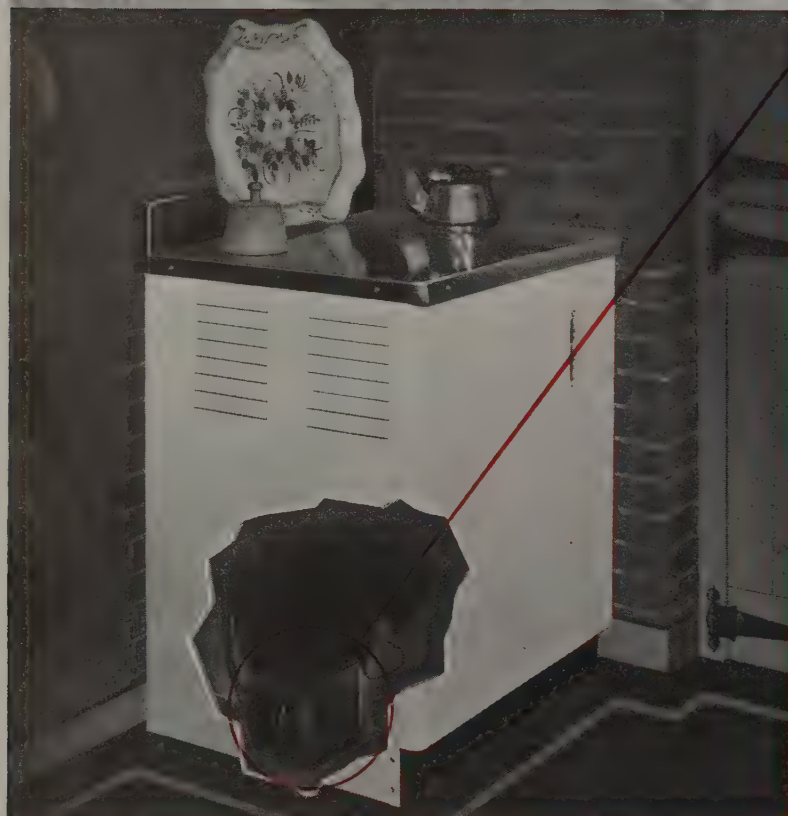
**A PRODUCT OF YORK-SHIPLEY, INC., YORK, PENNSYLVANIA**



A NEW CITY..... **LEVITTOWN, P.A.**

AGAIN **FRANCEFORMERS**

HELP **YORK-HEAT** DO THE JOB



**POSITIVE IGNITION SPARK  
WITHOUT INTERFERENCE**



York-Heat engineers for years have found that the Franceformers provide the high voltage spark that is required for oil burner ignition and that Franceformers provide this positively throughout the burner's operating cycle. Franceformer controls are engineered to operate without radio or television interference and to develop the spark necessary for positive burner operation.

France (established in 1913) are transformer specialists, building a complete line of high voltage and limited current transformers for oil burner ignitions and Neon signs, and instant-start fluorescent light ballasts. France's modern manufacturing facilities plus advanced electrical engineering laboratory are being extended into the field

of electronic and electromechanical controls. Three continuous flow, high speed production lines are operated in the 23,000 square foot plant for mechanical assembly, bench assembly, and wiring for electronic devices. If yours is a transformer or control problem, write to us. The France Manufacturing Co., 10325 Berea Road, Cleveland.

**A PRODUCT OF THE FRANCE MANUFACTURING CO., CLEVELAND 2, OHIO**

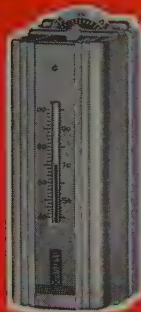
A NEW CITY..... **LEVITTOWN, P.A.**

AGAIN  **PERFEX** CONTROLS

HELP **YORK-HEAT** DO THE JOB



#### COMFORT CONTROL



Perfex thermostats again have been selected by York-Heat, this time to provide the best available comfort control for the new York-Heat "Table-Topper" heating plant. Perfex's advance-design thermostats when teamed with York-Heat's advance-design heating equipment give users the "perfect comfort" expected from radiant heating. Perfex controls are truly "Controls You Can Trust" for any heating equipment!

#### OIL BURNER CONTROL



This small, compact Perfex Oil Burner primary control adapts itself perfectly to this equipment. Perfex primaries assure long life, safe, automatic, trouble-free operation for York-Heat's oil burner and provide safe shut-down in event of power, flame or ignition failure.

No matter what heating system you have or what fuel you burn, Perfex controls provide the best possible comfort from your heating equipment. The Perfex "Magic Dial" for example, is rapidly becoming the most popular home thermostat in America. No other thermostat offers the home occupant *comfort selection in addition to*

*temperature setting!* Write for your copy of the new Perfex Condensed Catalog of Controls for Coal, Gas, Oil and Electric Heating and the new untechnical story titled "The Lady Who Loved a Thermostat". Thousands of copies have been sent to readers of *Good Housekeeping* and *House Beautiful's* Building Manual.

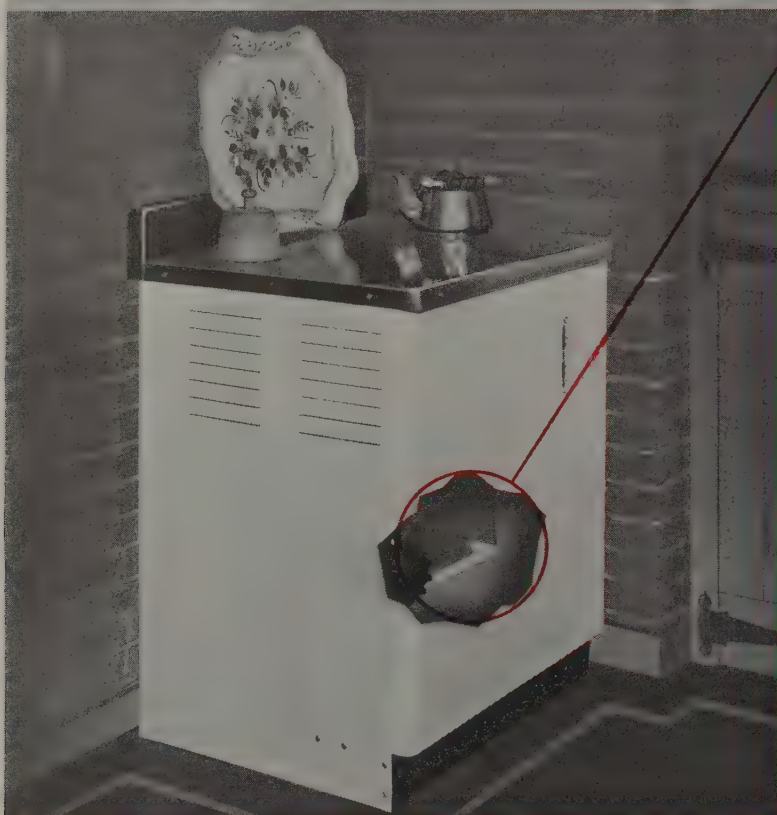
A PRODUCT OF PERFEX CORPORATION, MILWAUKEE, WISCONSIN



A NEW CITY..... **LEVITTOWN, P.A.**

AGAIN **J. H. FRANCE** REFRACTORIES

HELP **YORK-HEAT** DO THE JOB



#### HYDRECON COMBUSTION CHAMBER



Hydrecon is used to build the York-Heat Levittowner combustion chamber. It has been selected because of its long life and ability to withstand heat and fluctuating temperatures without disintegration or spalling. These chambers are machine cast by York-ShIPLEY to a design that provides perfect combustion, thus assuring efficient oil burning.

J. H. France Refractories Co. manufactures a complete line of high grade refractories for use in all installations requiring products that will withstand high temperatures. In addition to the Hydrecon refractory concrete used in the York-Heat Table Topper, the J. H. France Refractories

products include other types of refractory castables, high heat-duty fire brick, high temperature mortar, and super-duty fire brick. If you have any problems regarding refractory materials, France engineers will be happy to furnish you with complete data on their line.

A PRODUCT OF J. H. FRANCE REFRACTORIES CO., SNOW SHOE, PA.

# The Sliding Doors That Need No Alibis



That's how Emanuel M. Spiegel describes the **New**

**NATIONAL**

**SLI-D-O-O-Rs** \*

America's Newest, Finest, Sliding Doors

Made of United States Plywood Corporation's  
Amazing, New, Non-Warping **Novoply**.

Mr. Spiegel, First Vice President of the NAHB, is an eminent New Jersey builder with an impressive construction background. He knows sliding doors; knows that SLI-D-O-O-Rs won't warp, slide easily, finish perfectly, are priced right; SLI-D-O-O-Rs offer advantages, not alibis. Many thanks, Mr. Spiegel.

- ▶ SLI-D-O-O-Rs are solid throughout, will not warp, and slide silently on precision-engineered, ball-bearing rollers.
- ▶ Adjustment and construction procedures have been reduced to the simplest minimum.
- ▶ SLI-D-O-O-Rs ARE A COMPLETE PACKAGE. They are a combination of Novoply doors and select jambs, header and saddle. When installed, SLI-D-O-O-Rs operate with easy sliding action. Oak saddle blends with finished hardwood floor.
- ▶ SLI-D-O-O-Rs are supplied with fascia so that only the handsome sliding doors are visible.
- ▶ Novoply takes paint or stains beautifully. It will not bleed or check and is not subject to grain raising.
- ▶ When properly adjusted, rear roller guides permit removal of door or fasten securely to prevent door from falling from casing. Doors are as attractive from the back as from the front.

\*Trade Mark Reg.

## DIMENSIONS:

### TWO DOOR OPENINGS...

Outside jamb to outside jamb: 2'0", 2'6", 3'0", 3'6", 4'0", 5'0", 6'0", 7'0", 8'0".  
Outside header to outside saddle: 6'9 1/2" or 8'0".

### THREE DOOR OPENINGS...

Outside jamb to outside jamb: 6'0", 7'6", 9'0", 10'6", 12'0".  
Outside header to outside saddle: 6'9 1/2" or 8'0".

SPECIAL SIZES WILL BE MADE TO ORDER IF QUANTITIES WARRANT IT.

Distributed in some areas by United States Plywood Corporation and U. S.—Mengel Plywoods, Inc.



Write for complete, informative folder.

**NATIONAL**

**SLI-D-O-O-Rs**

are Made Only By

**NATIONAL DOOR CO.**

3 Michigan Avenue • Kenilworth, New Jersey



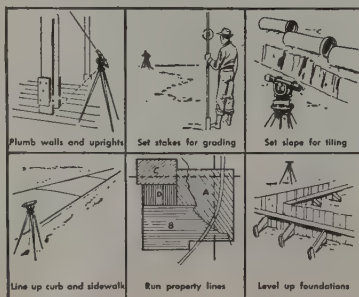
## White Universal Level-Transit...



**the most versatile instrument you can own!**

**Y**ES, the White "Universal" Level-Transit is the most practical, complete instrument on the market. Now available in a new improved model — the No. 3000 — with internal focusing, coated optics, guarded vertical arc. In fact, every feature to assure you lifetime durability and accuracy. And the price is *only* \$185\*, complete with tripod. See your dealer, or write **DAVID WHITE COMPANY**, 397 W. Court Street, Milwaukee 12, Wisconsin.

Indispensable for all these jobs and many more



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We offer the most expert **REPAIR SERVICE** on all makes, all types of instruments.

\*Price subject to change without notice.

## REVIEWS

**TEXTILE DESIGN.** By Antony Hunt. The Studio Publications, 432 Fourth Ave., New York, N. Y. 96 pp. 7½ x 10". Illus. \$4.50

Editor (*British House & Garden*) Antony Hunt has written new text for this, the fifteenth in a series of 40 "How to" books published by The Studio. It is lively reading, too, despite some rather startlingly lyrical passages. Of its value to anyone considering a career in the textile designing field there can be little doubt. The advice is excellent, the descriptions of manufacturing processes concise. That British and American tastes are worlds apart is demonstrated by the illustrations (the book would have benefited in some instances by color plates). It is questionable that a fabric based on Constance Spry's arrangement of peacock feathers and leaves would find an American market, but many of the designs are engaging. If most US decorators have sworn off moss fringe, few can show textiles to rival Jean Verda's *Inconstancy* or Ben Nicholson's *George and Rufus*. It is regrettable that the publishers did not see fit to substitute American for British references—as in the chapter on where and how to sell designs. But this book contains so much hardheaded data that students and professionals will find it useful for reference and fun to read.

**SUNSET PATIO BOOK.** Lane Publishing Co., Menlo Park, Calif. 174 pp. 8¼ x 10½". Illus. \$2 (Special edition \$3)

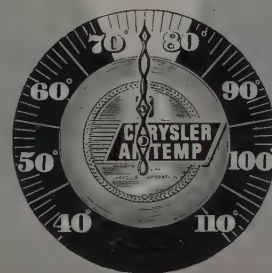
Webster, rather churlishly, dismisses the word *patio* as *courtyard*. No such limitations inhibit the editors of *Sunset Patio Book*. Among its more than 180 photographs are decks, porches, back yards and lanais, gardens, lawns, pools, terraces and barbecues. This is on the credit side of the ledger since it makes the ideas applicable to parts of the country where the word "patio" can have a glacial sound on brisk days in the spring and fall. Methods of protecting determined outdoor livers from sun, wind and rain are investigated in some detail. The two most entertaining photographs in the book, illustrating air movement, show the effects of wind on cotton balls hung from string and paper cones on pegs. Merchant builders who may plan to improve their houses by offering outdoor living facilities will find useful discussions of the relative values and demerits of various paving materials and photos of fence materials. Unfortunately for the sun-lover of average income, little thought is wasted on budget solutions. To tantalize him there are radiantly heated terraces, elaborate pools and sumptuous cooking installations. He may, however, learn a thing or two about best orientation and get some good advice on the upkeep of patio furniture. If he is very brave, he might also flirt with the idea of building his own pool from diagrams given here.

## Silent Salesman for Your Home Chrysler Airtemp Comfort Zone



### HEATING • AIR CONDITIONING

Home buyers look for the plus features in a house—and year-round Comfort Zone Air Conditioning is a most potent sales point. In your budget homes, install a Chrysler Airtemp Comfort Zone heating system, then the purchaser can later install a Chrysler Airtemp "Packaged" Air Conditioner for summer cooling. With Chrysler Airtemp year-round equipment, you can offer this added attraction complete for less than 25¢ a day, when included in the mortgage. Remember, Chrysler Airtemp is the **FIRST** "Packaged" Air Conditioner with a Sealed Radial Compressor which carries a five-year warranty!



**AIRTEMP DIVISION  
OF CHRYSLER CORPORATION  
DAYTON 1, OHIO**

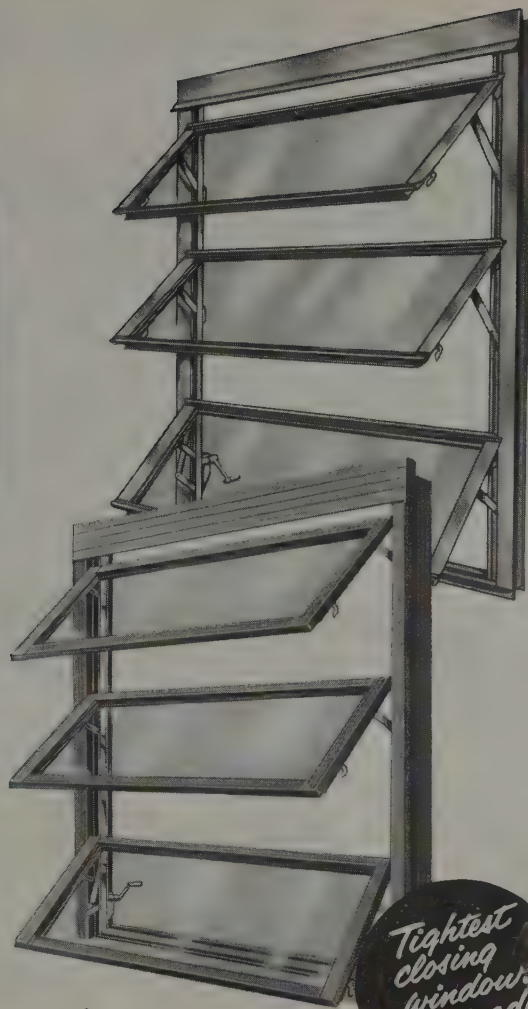
Airtemp Division, Chrysler Corporation  
P. O. Box 1037, Dayton 1, Ohio H&I-R-52  
Please send me details about Chrysler Airtemp residential heating and air conditioning.

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Address \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_  
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YELLOW PAGES FOR THE  
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**ONLY *Auto-lok*  
AUTOMATIC LOCKING  
GIVES YOU ALL THESE  
OUTSTANDING  
FEATURES...**



*Tightest  
closing  
windows  
ever made*

sealed  
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**Auto-lok**  
AUTOMATIC LOCKING  
PATENTED  
**WINDOWS**  
Aluminum or Wood

**FRESH AIR WHILE IT'S RAINING**



No more running to close windows ... rain can't enter through slanting sash!

**WARMER IN WINTER**



Seals itself shut like the door of your refrigerator ... keeps heat in ... cold out!

**COOLER IN SUMMER**



Opens widest ... scoops air inward and upward ... luxurious ventilation, but no drafts!

**PRACTICAL BEAUTY**



Narrow horizontal lines and graceful tilt of sash in every open position add distinction to any home ... lend themselves to a wider variety of architectural arrangements.

**INTERCHANGEABLE  
SCREENS AND STORM SASH**



Can be handled all from the inside. Just flip the clips ... no tools required. Reduce a day's work to an hour!

**EASIEST TO CLEAN**



Nothing to lift out ... no sash to remove ... no gadgets to disengage. Simply open wide and clean all glass from the inside ... top sash, too!

**FRESH AIR NITE-VENT**



Bottom sash opens slightly for night ventilation, while upper sash remains securely locked ... fresh air circulation during bad weather, too!

**FINGER-TIP CONTROL**



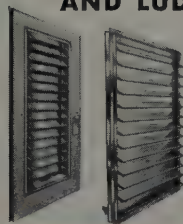
for a lifetime. Perfectly balanced, friction-free mechanism operates window at the touch of a finger. No adjustments ever necessary ... never sticks, never rattles!

**CONCEALED HARDWARE**



No unsafe, unsightly mechanism exposed to collect dust. Compact roto-type operator handle does not interfere with drapes, blinds, etc.

*Windo Tite* **JALOUSIES  
AND LUDMAN JALOUSIE DOORS**



Porches ... breezeways ... carports can be turned into attractive, year-around liveable rooms with beautiful Windo Tite Jalousies. Ludman Jalousie Doors bring light to dark toyers and halls. Write for complete information.

**MAIL THIS COUPON TODAY**

LUDMAN Corporation  
Box 4541, Dept. MB-6, Miami, Florida

Gentlemen: Please send me, without obligation, the booklet, "What is Important in A Window" ... and complete information regarding the Ludman Products checked here:

- ☐ Auto-Lok Aluminum Windows ☐ WindoTite Jalousies ☐ I am a ... Architect ☐  
☐ Auto-Lok Wood Windows ☐ Ludman Jalousie Doors ☐ Builder ☐  
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City \_\_\_\_\_ State \_\_\_\_\_

**LUDMAN LEADS THE WORLD IN WINDOW ENGINEERING**



# HOLCOMB & HOKE FOLD DOOR



## Spaciousness when it's needed privacy when it's wanted

Build your homes with greater flexibility, more privacy, new beauty—with FOLDOR. FOLDOR is the easy, economical answer to many space-saving problems—a special selling feature for bungalows or bigger homes.

FOLDOR, a truly improved folding door, serves efficiently as a door closure or a movable wall. Closed, FOLDOR adds an extra bedroom, a quiet study or a TV retreat, complete with individual privacy.

Open it and again the entire space is available.

FOLDORS come in all sizes, in lovely harmonizing colors. The frames are rust-resistant steel—strong, rugged, rigid. Vinyl-coated fabrics are durable, washable, fire-resistant.

• • •

Full details and specifications in Sweet's Architectural Catalog. For further information, call your nearby FOLDOR installing distributor or write to us.

**HOLCOMB & HOKE MFG. CO., INC.**  
1545 Van Buren St., Indianapolis 7, Indiana

★ **THE FOLDING DOOR WITH THE CORNICE ON TOP**



## PRODUCT NEWS

### PIXY FIXTURES: Balsa mobiles play over lighting cones

Balmy May left its mark on lighting fixtures. One manufacturer hit hard by spring whimsy is Gotham. Along with its new line of double cone lights—conservative contemporary by themselves—the firm is offering four flirtatious little sculptures. The painted balsa wood forms suspended on fine thread can be set over a wall lamp or may be hung singly or in multiples from one of the ceiling fixtures. Air currents created by the lamp's heat are enough to keep the sculptures in gentle motion. Executed by Marechal Brown, the mobiles may be purchased separately at prices ranging from \$23 to \$33.

The lighting fixtures are made in nine different groupings for wall and ceiling mounting. The top section of each cone houses any frosted bulb of 25 to 100 w.; it will also take a 75 w. reflector flood or spot. The bottom component, engineered for directional or general illumination, accommodates lamps up to 150 w. The rods are aluminum, lacquered to a satin finish, and the hoods have a baked enamel coat of semigloss white. (Other colors may be obtained on order.) The wall bracket lamp lists at \$26 unadorned; the three-fixture ceiling unit at \$80.

*Manufacturer:* Gotham Lighting Corp., 37-01 32d St., Long Island City 1, N. Y.

### TEXTURED FIXTURES: Fabric forms diffuse soft light

Loose woven cloth over a plastic cylinder emits warm light on each of Middletown's two table lamps. Metal tubing, lacquered black, is bent into a neat tripod for the 13½" high pull-chain lamp. Catalogued as *T 11*, the model retails for \$16. The 15" tall lamp, *T 10*, has a three-way bulb and an open top reflector of spun aluminum finished in matte white. Its price is \$21. Both lamps were designed by Harry Gilin.

*Manufacturer:* Middletown Mfg. Co., Box 340 Middletown, N. Y.

### LATEX FIXTURES: Cover-shades come off for laundering

Clockmaker Howard Miller stepped into the lighting business last month with some rubber box kites. Designer George Nelson drew inspiration from the Orient and latex fabric from girdles to devise this gay lamp group. Using the material in primary colors as "covershades," Nelson stretched taut panels of it over bantamweight wire frames which are painted black or white. Easily removed for washing, the rubberized fabric panels diffuse the light evenly. There are four other table and pin-up models in addition to the two lamps pictured at right. Retail prices are between \$15.95 and \$21.95.

*Distributor:* Richards Morgenthau, 225 Fifth Ave., New York, N. Y.

# Now MATICO offers a SUPERIOR, NEW PLASTIC FLOORING for on, above or below grade

Impervious to petroleum solvents, oils, greases, turpentine, alkalis and household acids.

Extremely resilient. Good sound absorption.

Smooth, non-porous surface sheds dirt — wipes clean with damp mop.

Excellent indentation recovery.

Fire-resistant—will not support flame.

Wide variety of bright, clear, non-fading colors.

Easy to install—no special adhesives needed.

Available in 9" x 9" standard gauge and 1/8" tiles.



## ARISTOFLEX

THE ARISTOCRAT OF RESILIENT FLOORING

### PLASTIC—ASBESTOS . . . NO FELT BACKING

New MATICO Aristoflex Tile Flooring is plastic-asbestos through and through. It's extremely tough, very flexible. Vivid, sparkling colors and marbleization go clear through each tile. Long wearability and enduring beauty are assured.

Aristoflex may be laid direct on concrete . . . over terrazzo or ceramic . . . on wood over 15-pound saturated felt . . . and over magnesite (above grade).

Installation is unusually easy, and less costly. No special cements are required, ordinary asphalt tile adhesive does the job. It lays in tightly, immediately, due to square corners and clean edges.

**Write for free Aristoflex samples and specification data.**

Dept. 146

QUALITY CONTROLLED

**MATICO**  
TILE FLOORING

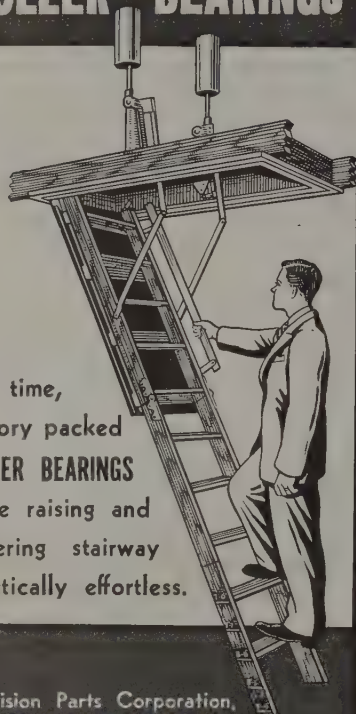


**MASTIC TILE CORPORATION OF AMERICA**  
Member Asphalt Tile Institute  
Joliet, Ill. Long Beach, Calif. Newburgh, N.Y.  
World's largest producer of asphalt tile



# PRECISION

the only attic stairway  
equipped with  
**ROLLER BEARINGS**



Life time,  
factory packed  
**ROLLER BEARINGS**  
make raising and  
lowering stairway  
practically effortless.

Precision Parts Corporation,  
not content with the smoothest  
and easiest operating stairway  
on the market, equipped their Precision  
Folding Stairway with roller bearings for  
still smoother and easier operation.  
Actuated by counterweights which op-  
erate on these bearings the stairway is  
practically 100% free of friction and all  
but raises and lowers itself.

## OTHER OUTSTANDING FEATURES

Constructed of No. 1 kiln dried pop-  
lar. Heavy cast aluminum alloy  
brackets, rocker arms and hinges.  
Composition safety treads on steps.  
Door panel insulated with Cellufoam.  
Requires no attic space. Accepted  
by F.H.A. everywhere.

For complete information write or  
wire us today.

Manufactured by

**PRECISION PARTS CORPORATION**  
402 NORTH FIRST STREET  
NASHVILLE 7, TENNESSEE

## PRODUCT NEWS

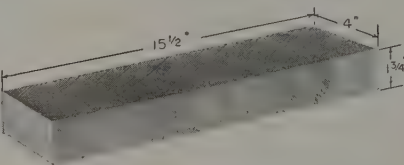
### NEW STONE FROM OLD: Lanky block unit hewn from 5,000,000-year-old limestone

Texas limestone cut into long slim blocks,  
*Romanstone* is a handsome structural material.  
Its crisp edges, horizontal lines and irregular  
markings should work well for many contem-  
porary exteriors and interiors. Although each



piece is uniform in size (for accurate planning  
in placing beds and joints), no two units have  
the same texture. The stone's natural varia-  
tions—shells, pits and calcined areas—are  
played up by the mammoth gang saw used to  
cut the face. Color ranges from light cream  
to buff, and the stone may be waterproofed  
with or without staining.

Each brick weighs 8 lbs. and has a crushing  
strength of about 2,800 lbs. to the sq. in. Its  
price, \$35 per ton, is said to be competitive



with Roman-cut kiln brick. One ton of *Roman-  
stone* will cover 62 sq. ft. of wall area, so the  
cost per sq. ft. is about 56¢ without labor.  
When laid with  $\frac{1}{2}$ " beds, 400 of the units  
will cover 100 sq. ft. of wall area. Contact with  
mortar does not discolor the material.

*Manufacturer:* Stone Building Products Inc.,  
608 Perrybrookes Building, Austin, Tex.

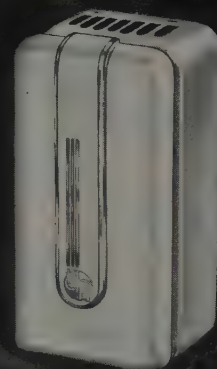
### ASBESTOS-CEMENT BUILDING SHEETS have fresh colors in random pattern

An economy material is getting contemporary  
styling from Johns-Manville. An asbestos  
cement building board, *Colorbestos* is fabri-  
cated in large units (which go up quickly yet  
are easy to handle) and colored during the  
processing. Tiny ceramic granules of varying  
dark and light shades are pressed into the  
sheet in a bold, random rib pattern. Seven  
tonal blends are available: yellow, red, brown,  
green and three tones of gray. The sheet mea-  
sures 8' high and 32" wide (to span two stud  
spaces) and is  $\frac{3}{16}$ " thick. Each piece has  
prepunched holes down the center and along  
the sides so that nails can be driven directly  
in the studs. It takes about 10 mins. for a man  
to apply one sheet of the prefabricated material.  
Used vertically, the joints are butted. For  
horizontal applications a lap joint is rec-

(Continued on page 178)

Specify...

the MOST MODERN  
**THERMOSTAT**  
for YOUR HOMES



## COMPLETELY DISTINCTIVE...

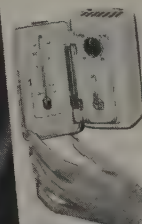
in appearance and operation, the  
White-Rodgers thermostat has a  
hinged cover protecting the thermo-  
stat and adjusting dial.

The impressive ivory and chrome de-  
sign harmonizes perfectly with any  
decorative scheme.

Timed cycling and heat anticipation  
features assure customer comfort sat-  
isfaction. Day-night types available  
without increase in size.

Specify White-Rodgers  
controls on all your  
heating systems.

Catalog on Request



**WHITE-RODGERS**  
**Controls**  
FOR REFRIGERATION  
HEATING AND  
AIR CONDITIONING

ST. LOUIS 6, MO.

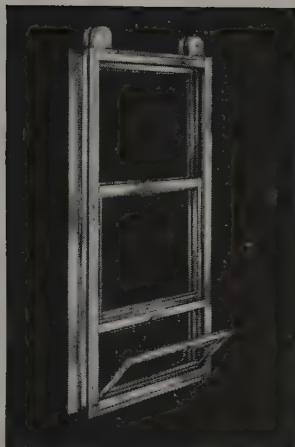
There's a new member in the family of Ceco better engineered products

We present

## CECO-STERLING aluminum windows

Here is Ceco-Sterling Double-Hung Aluminum Window, Series 200-B with Hopper Vent . . . especially adaptable for hospitals and schools.

Here is Ceco-Sterling Double-Hung Aluminum Window, Series 50-B for residences.



Adding a new member to our family of building products is something we do with a great deal of thought here at Ceco. Thought of you . . . the architect, engineer, contractor, builder, dealer and of course the owner, too.

So painstaking research guided us in deciding on the new member of our family.

Today we offer you Ceco-Sterling Double-Hung Aluminum Windows because you've stated your preference for such a product.

And since there was immediacy in your desire we acquired a product already in manufacture . . . the Sterling Aluminum Window . . . a leader in the field since 1937.

Here's a window built for permanence . . . made to outlast any structure . . . handsome and then some . . . with clean graceful lines . . . slender muntins allowing a generous glass area letting in more light . . . more view.

When you specify Ceco-Sterling Aluminum Windows you know you specify the very best . . . you're sure of savings, too.

### CECO STEEL PRODUCTS CORPORATION

General Offices: 5601 W. 26th St., Chicago 50, Illinois

Offices, warehouses and fabricating plants in principal cities



### Here are 9 reasons you'll prefer Ceco-Sterling Aluminum Windows

- 1 Made of ageless aluminum — won't rot, rust, rattle, stick, warp or swell
- 2 All climate, weather-tight seal; completely weather stripped
- 3 Easy to install—simplified anchorage
- 4 No painting necessary—minimum maintenance
- 5 Wipe-easy cleaning
- 6 Rigid, rugged long-life construction
- 7 Feather-light, friction-free, raised or lowered with finger tip
- 8 Smart styling—with a look of the future
- 9 They last and last—offer long haul low cost



Here is Ceco-Sterling Double-Hung Aluminum Window, Series 200-B, used in commercial, monumental, office, and industrial buildings . . . also popular for hospitals and schools.

CECO

*In construction products* **CECO ENGINEERING** *makes the big difference*



## THE LAST WORD IN

*Bathroom Comfort!*



### The TWO-in-ONE Fixture Luxurious Warmth in Seconds any Season of the Year

● A ceiling fixture that gives soft, clear light along with the cleanest, safest, most comfortable heating ever developed!

With the **Thermolite**, you just flick a switch and the room is flooded with healthful, radiant heat that warms the body, floors and surfaces without drying out the air. Ideal for cool Spring or Fall days when extra bathroom heat is needed. Perfect for any season.

It's economical, too. The **Thermolite** operates on half the current required for an electric iron. It installs as easily as an ordinary lighting fixture. Three-way switch provides separate control of heating and lighting. Warranted for five full years.



You shave in luxurious comfort all through the year with **Electrigras Thermolite**.

Healthful radiant comfort in the bathroom for all the family day or night the year 'round.

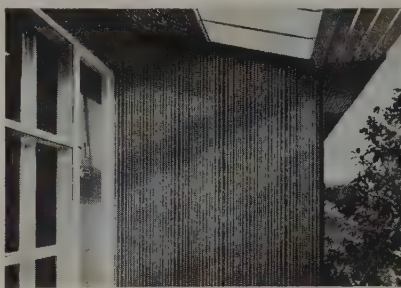
**SPECIFICATIONS:** Thermolite uses regular 110 Volt household current, operates on 500 Watts and is 20 inches in diameter. Light is diffused through a white opal lens from two 60 Watt bulbs.

WRITE FOR FOLDER B

**APPLEMAN  
GLASS WORKS**  
BERGENFIELD, NEW JERSEY

## PRODUCT NEWS

ommended; however, butted joints can be used with "Z" flashing. Primarily a wall material, *Colorbestos* also may be used for soffits. It can be cut with a power saw, or may be



scored and snapped. The material sells for about 12 to 15¢ per sq. ft., not installed. Final cost is about \$3.40 to \$3.70 per panel.

*Manufacturer:* Johns-Manville, 22 E. 40th St., New York 16, N. Y.

### SELF-ALIGNING HINGE eliminates mortising

No recess is needed to accommodate the *Hurlinge* door hinge. An English import, the hardware is fastened directly to the door and



frame without any mortising and chiseling. Its outer leaf is screwed to the frame and the inner section attached to the door. When closed, the smaller leaf fits into the cut-out of the larger portion. The item is fabricated in 2½", 3" and 4" sizes with loose or tight pins. Standard finishes are: bright steel, brass, bronze, cadmium, and satin or polished chrome plate. The hinges also are furnished with a prime coat on a bonderized base. Retail prices run from about \$2.40 to \$12.12 per dozen.

*Manufacturer:* No-Mortise Hinge Corp., Bound Brook, N. J.

### GLASS BLOCK PANEL with handle and hinge swings out for ventilation

From the outside a *Panel Vent* looks like a regular glass block. Actually, it is a half



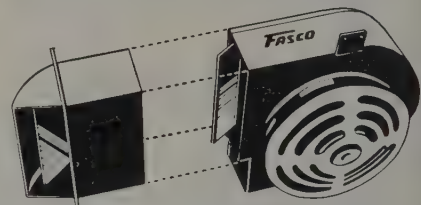
block set in a hinged 8" square aluminum frame so that it may be opened for air. The block, available in any of the six Insulux patterns, is coated with asphalt emulsion and is laid the same way as its

staid wall-fellows. A stainless steel handle on the inside is turned to operate the ventilator unit. When closed, the block fits tightly

(Continued on page 190)



## NEW VENTILATOR FOR THE MASS MARKET:



*the* **FASCO**

No. 728

"CEIL-N-WALL"

The lumberman—the builder—and the home-owner will all welcome this newest addition to the FASCO line.

Specifically designed for Kitchens, Bathrooms, Utility Rooms, Playrooms and the like, the "728" is expertly engineered, beautiful in appearance and amazingly low priced.

### SPECIFICATIONS

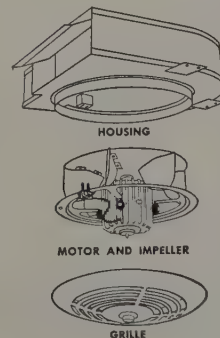
**Housing:** heavy steel; fits between 14" or 16" center joists or in standard kitchen cabinets.

**Motor:** newly designed 4-pole type, resilient mounted to minimize vibration.

**Impeller:** 7" turbo-radial model, provides maximum air movement (325 CFM) with least noise.

**Grille:** heavy steel, chrome-plated.

Write for Detailed Catalog Sheets



**FASCO**  
Industries, Inc.

211 AUGUSTA ST., ROCHESTER 2, N. Y.



# The kids aren't kidding... "SLIDE-EASE" is America's NEWEST, LOWEST-PRICED SLIDING DOOR

(★ Several choice distributor territories available)



## Made by America's Largest Sliding Door Manufacturer

● SLIDE-EASE is the perfect answer to your closet construction problems. Available in either masonite or plywood, the new Slide-Ease sliding door is the lowest priced door on the market... the simplest to install! One man, plus one screwdriver, plus 15 minutes, equals installation. With these superior door packages you also get the famous SLIDE-ALL hardware that has been used by the country's leading builders in more than 200,000 installations. Slide-Ease doors can be painted

or wallpapered and are available in a variety of sizes to meet all requirements.

### LOOK AT THESE FEATURES!

- Completely guaranteed
- Both sides edged in steel
- Simplest to install...only 15 minutes
- Adjustable levers
- Complete package includes doors, overhead track with ball bearing rollers and grooved oak saddles.

## U. S. SLIDING DOOR CORPORATION

U. S. SLIDING DOOR CORPORATION  
404 EAST 100 STREET, NEW YORK 29, N. Y.

MBM-5

Please send me, without obligation or cost, your catalogue and complete information on Slide-Ease doors. I am interested as a

.....Architect .....Builder .....Dealer

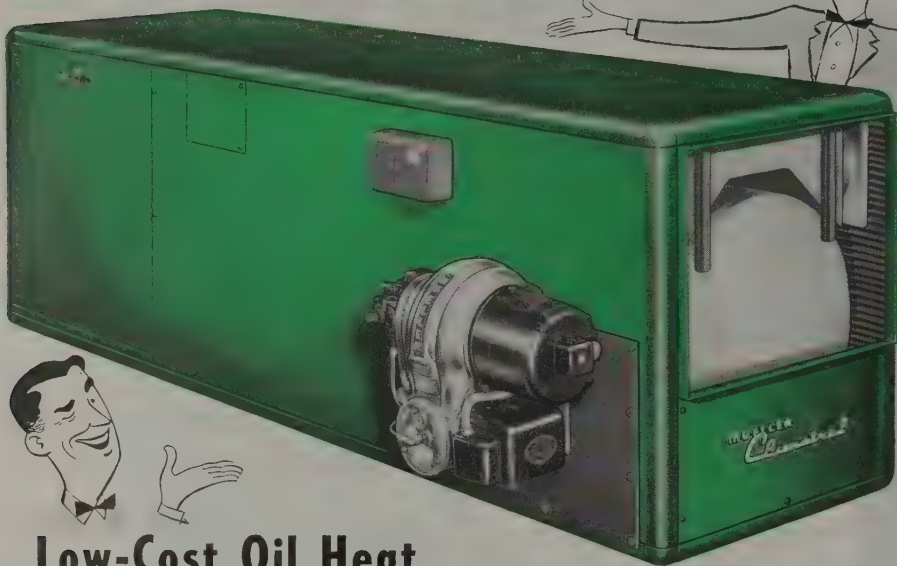
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It's *New!* It's *Different!*  
It's *Better!*



Low-Cost Oil Heat  
for Homes and Commercial Applications

**Mueller Climatrol**

**Type 253 Horizontal Oil-Fired Furnace**



### Compare these Features

**Welded Steel Heat Exchanger** — Undraft flue travel. Unique design, with long flue travel, assures top efficiency. High, insulated crown sheet — will not burn out.

**Handsome Casing** — Trim, compact, easily accessible. Unit can be serviced in installed position. Entire unit cleanable without removing casing.

**Large, Quiet Blower** — To provide required CFM with lower blower speeds—thus reducing vibration sounds, and insuring longer life. Design of heat exchanger provides free flow of air over all heat exchanger surfaces.

**Shipped Assembled** — Pre-wired with fan and limit switch in position. Burner, blower motor and all controls are factory tested before shipment.

Here is an outstanding new horizontal oil furnace with unique design features which assure more efficient and quieter operation — with longer life. The Type 253 can be used as a horizontal furnace in attics or crawl spaces of homes, or it can be suspended for application as a blower-unit heater in commercial installations.

Initially, this unit is available in one size — 110,000 Btu input. Soon to come are sizes up to 225,000 Btu input. It is available with either of two efficient Mueller pressure atomizing oil burners, and can easily and inexpensively be converted to gas.

It will pay you to get full information on the many outstanding design, construction and operation features of this new Mueller Climatrol horizontal oil furnace. Write today; use the convenient coupon below.

L. J. Mueller Furnace Co.  
2020-U W. Oklahoma Ave., Milwaukee 15, Wis.

Send me more information on your new Type 253 Horizontal Oil-Fired Furnace.

Name.....

Company.....

Address.....

City.....(.....) State.....

**Mail this coupon!**

**Mueller  
Climatrol**



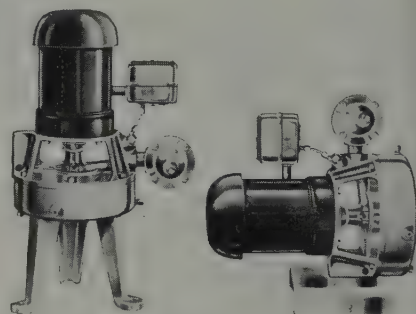
## PRODUCT NEWS

against a gasket inside the frame. It also has an aluminum insect screen. Selling for about \$6, the *Panel Vent* can be used alone in a masonry wall to provide ventilation for a hallway, garage, attic, basement, closet or bathroom.

*Manufacturer:* American Structural Products Co., Toledo, Ohio.

### DEEP WELL PUMP can be used for horizontal or vertical applications

Without any mechanical changes, *Burks H-V* deep well pump can be installed either vertically or horizontally. Available with fractional and 1 hp heavy duty motors, units have capacities up to 1,500 gals. per hr., and depth ranges to 130'. A special air vent built into the *H-V* expels air and gas from the case and



makes priming easier. The pump has a non-chattering control valve and its pressure switch is designed to prevent the diaphragm from becoming clogged and causing switch trouble. The 1/4 hp unit sells for \$120; the 1 hp unit for \$180.

*Manufacturer:* Decatur Pump Co., 2750 Nelson Park Drive, Decatur, Ill.

### PAINT NEWS: A one-coat house paint; 200 colors on the outside; no smells on the inside

There were stirrings in paint last month. Adelphi Paint & Color Works, Inc. of Ozone Park, N. Y. announced a one-coat house and trim paint, priced competitively with other exterior coatings. Concentrated pigment in a synthetic base is used to get the good coverage from a single coat.

A rich, carefully planned range of 200 exterior tones was announced by color-conscious Martin-Senour Co. of Chicago. Both the muted tones suggested for walls and the bright trim tones are complementary to earth and foliage colors. The firm also is making available stains for outdoor use in the same broad *Nu-Hue* palette.

In Brooklyn, N. Y., Keystone Paint and Varnish, one of the first firms to make a truly odorless oil base paint, reported a complete line of smell-less paints—flat, semigloss and enamel—for every interior surface.

(Technical Publications on page 196)

# GET BETTER BRICKWORK WITH **BRIXMENT!**

Good workmanship requires that all head joints in both face brick and back-up work be *completely* filled with mortar, by any of the three methods pictured below.



Method 1. Plenty of mortar should be thrown on the end of the brick to be placed.



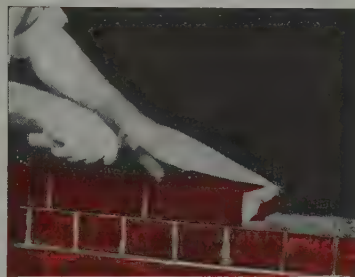
The brick should then be pushed into place.



So that the mortar oozes out at the top of the head joint.



Method 2. A dab of mortar should be spotted on the corner of the brick already in place.



Then plenty of mortar should be thrown on the end of the brick already in place.



So there will be more than enough mortar to fill the joint completely when the next brick is pushed in place.



Method 3. A full trowel of mortar should be thrown on the wall.



Then the brick should be shoved into this deep bed of mortar.



So that the mortar oozes out at the top of the joint.

**BRIXMENT** permits the bricklayer to do the kind of work pictured above. It does not stiffen up too fast, when it hits the brick. It remains rich and plastic long enough to allow the bricklayer to place the brick, easily and accurately.

In addition to its greater plasticity, Brixment mortar has higher water-retaining capacity and bonding quality, and greater resistance to freezing and thawing. Because of this *combination* of advantages, Brixment is the leading masonry cement on the market.

LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE 2, KENTUCKY



If you design, build  
or finance houses...  
you'll want this unique  
guide to More Sales  
through Comfort  
from Moving Air!



THANKS to modern air-moving equipment, architects and builders have gained a new freedom in design... and found an important new avenue to client satisfaction. "Open kitchens" that don't spread greasy smoke and kitchen smells... odor-free "inside" bathrooms... are only two of the advances made possible by modern air-moving units... 120 leading American manufacturers of air-moving products have cooperated in publishing this unique guide to better houses and more sales through *Comfort from Moving Air*. A valuable data book, it gives you an accurate and illustrated description on everything from Air Circulators to Central Heating Systems. Send for your free copy today!

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Please send my FREE copy of the '52 GOLD BOOK  
"How to have Comfort from Moving Air"

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America's Leading Supplier of Fan Blades and  
Blower Wheels for the Air Moving Industry

THE TORRINGTON MANUFACTURING COMPANY  
TORRINGTON, CONNECTICUT

## TECHNICAL PUBLICATIONS

**DEFENSE HOUSING.** A Guide to Federal Aids for Housing and Community Facilities for Critical Defense Areas. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 22 pp. 8½ x 11". 10¢

Federal assistance available for housing in defense-crowded areas is discussed in this recent HHFA publication. Prepared for use in communities designated by Public Law 139 as "critical defense housing areas," the booklet explains how aid authorized by the same law (Defense Housing and Community Facilities and Services Act of 1951) can be obtained. The first part of the booklet describes programmed housing, relaxation of credit controls, special FHA mortgage insurance and assistance. The second section covers housing for military and atomic energy plant personnel, WW II housing that may be available for defense workers, loans for production and marketing of prefab housing, loans for student and faculty housing required by college defense activities, and aids for hospitals and schools. The last part notes briefly the federal government's major permanent housing activities such as those conducted by the FHA, the VA, and PHA. For those interested in more details on any particular phase of defense housing aid, the publication tells where to get further information.

**PLYWOOD IN CONSTRUCTION.** Plywood in Houses Built under FHA Loans. Douglas Fir Plywood Assn., Tacoma Bldg., Tacoma 2, Wash. 4 pp. 8½ x 11".

Details of the recent FHA acceptance of ¾" Douglas fir plywood sheathing over rafters 24" on center are presented in this brochure. Also itemized are excerpts from *FHA Minimum Property Requirements* on the use of Douglas fir plywood for siding, wall sheathing, roof decking, subflooring and interior walls.

**STUCCO.** Reinforced Portland Cement Stucco. Metal Lath Manufacturers Assn., Engineers Bldg., Cleveland 14, Ohio. 4 pp. 8½ x 11".

Complete details on reinforced stucco are contained in this folder. Specifications presented cover both new and remodeling work.

**PLASTICS.** Panelyte Plastic Beauty. St. Regis Paper Co., Panelyte Div., 230 Park Ave., New York 17, N. Y. 8 pp. 8½ x 11".

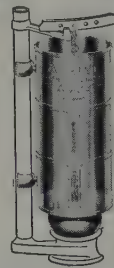
Many applications for plastic laminates in home construction and decoration are pictured in full color in this new folder. The firm's plastic surfacing material *Panelyte* is illustrated in uses ranging from kitchen counter tops and furniture to walls and shower stalls. Actual size reproductions of 16 of the 34 patterns in which the plastic sheeting is available are shown; and some recommendations for installation are given.

(Continued on page 202)



out of your plans!

Approved by  
American  
Society of  
Sanitary  
Engineering



Specify the  
**"ALERT"**  
Friction-Free  
FLUSH VALVE GUIDE

Stocked by All Leading  
Plumbing Jobbers

Stop toilet flush tank troubles before they start, by specifying this low-cost modification of standard plumbing! "ALERT" eliminates costly tank-ball-and-rod adjustments and replacements, cuts water bills, by eliminating friction, the major cause of faulty operation. Easy to install, "ALERT" is made of corrosion-resistant materials, and is guaranteed for 3 years.

As Reported in  
**READER'S DIGEST**

Test the "ALERT" Free  
Write today on the letterhead of your architectural or engineering firm. We'll send you an "ALERT" free, for inspection and test. No obligation!  
Ardmore Products Co., Ardmore, Pa.

Particular Home Owners  
*Prefer* the Finest!

# BILT-WELL

## MULTIPLE-USE Cabinets For Every Room in the Home!

Bilt-Well Multiple-Use Cabinets are the perfect answer to storage problems in today's homes! For these satin-smooth Ponderosa Pine cabinets may be adapted to a host of efficient and convenient storage areas throughout a home.

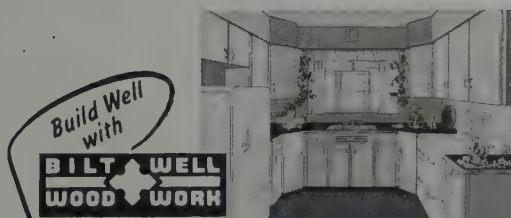
Each cabinet comes prefitted, semi-assembled and carton-packed. Complete instruction sheets are in the package and installation is as simple as ABC . . . Hammer and screw driver are the only tools necessary to do a professional job. Bilt-Well Multiple-Use Cabinets can be finished in any color scheme—painted, stained or varnished.

And they are furnished in a number of standard sizes, to fit any shape or size room. Their rounded corners and trim modern lines make them suitable for the most modern home.

Your customers will be thrilled with the multiple uses they can make of Bilt-Well Cabinets. And you'll be thrilled with the profits you can realize by selling them!

Write today for further information.

**CARR, ADAMS & COLLIER CO. Dubuque, Iowa**



Long—the ideal Cabinet for Kitchens

### THE BILTWELL LINE...

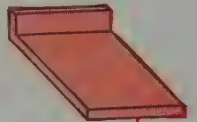
Superior Unit Wood Windows • Nu-Style & Multiple-Use Cabinets • Carrier Garage Doors • Combination Doors Screens & Storm Sash • Basement Unit Windows • Shutters • Exterior Doors • Interior Doors • Entrances • Louvers & Gable Sash • Corner China Cabinets • Ironing Board Cabinets • Mantels • Telephone Cabinets • Stair Parts.





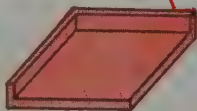
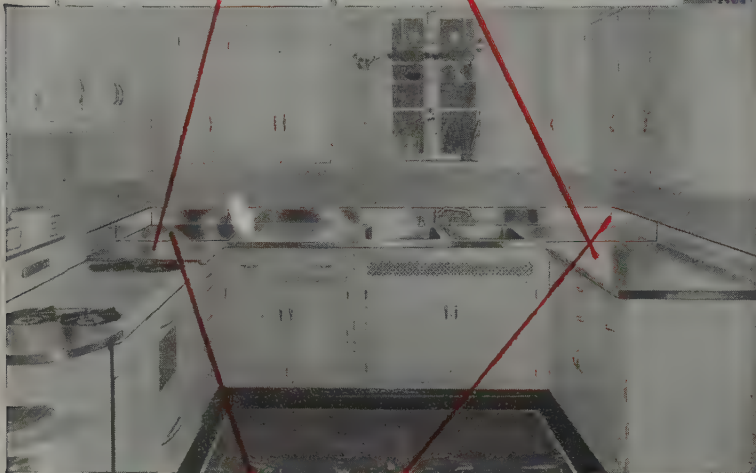
## Countertops and accessories by Elkay now fit every kitchen plan!

Countertops 25" wide, with 4" backs 1" thick, in these lengths: 24", 30", 36".



Countertops 25" wide, with 4" backs 1" thick, in these lengths: 15", 18", 21".

Now—Save up to 43% of the cost of a custom-built installation! Select the *Lustertone* Accessory Pieces designed to go with any stock *Lustertone* Sink and complete any kitchen plan... now you can sell custom convenience at new low, standard prices. Choose from among these standard items—all available promptly from warehouse stocks:



Corner Cabinet Tops 25" x 25", with 4" backs 1" thick on two walls.



Reversible Return Ends 25" front to back, 4" high.



End Fillers 25" front to back, up to 6" wide, to fill space between end of cabinet top and wall.

Now—Stainless Steel Sinks in 50 sizes available from stock! Select stock sinks from this list—add required accessories to complete any kitchen plan.

21 single bowl models—two styles in the following sizes: 39"•42"•48"•54"•60"•66"•72"•78"•84"•90"•96"

29 double bowl models—two styles in the following sizes: 60"•66"•72"•78"•84"•90"•96"•102"•108"•114"•120"•126"•132"•138"•144"

Now—New Lower Prices—Reductions up to 24.7%!

AND STILL THE ONLY SINK GUARANTEED TO OUTLAST THE HOME!

WRITE FOR INDEX B-1 GIVING COMPLETE DETAILS ON MODULAR METHOD

SEE CATALOG IN SWEETS, ARCHITECTURAL 24B ELK

**elkay** manufacturing company

1898 South 54th Avenue • Chicago 50, Illinois  
The World's Oldest and Largest Manufacturer of Stainless Steel Sinks

**HEATING.** Hot Water Heating System Manual, Form FCE-1251. H. A. Thrush & Co., Peru, Ind. 40 pp. 8½ x 11".

A complete engineering manual on hot water heating, the guide contains data tables, drawings, and examples of the most widely used systems. Designs for one- and two-pipe forced circulation are explained and a section on radiant heating gives details on current practices. Domestic water hookups are also covered briefly.

**HEATING.** Electric Unit Heaters. Electromode Corp., 45 Crouch St., Rochester 3, N. Y. 30 pp. 8½ x 11".

Useful information on electric heating is presented conveniently in this loose-leaf file folder. Spec sheets on each heater in the *Electromode* line, ranging in capacity from 1,320 to 45,000 w., are arranged according



to residential, industrial and farm applications. A formula shows how to figure heat loss and select the proper size heater for a job; and wiring diagrams and installation instructions are given for the wall-type heaters. Also included are illustrations of the heaters, and a price list.

**VENTILATION.** Change Your Home From Hot to Cool. Hunter Fan and Ventilating Co., 400 S. Front St., Memphis 2, Tenn. 8 pp. 8½ x 11".

Telling how attic ventilation can keep a house comfortable during summer, the booklet illustrates its simple explanation of the low cost cooling method with drawings and photographs. Packaged attic fans manufactured by Hunter are described, and instructions given for their installation.

**FLOORING.** Asphalt Tile Color Classification Chart. The Asphalt Tile Institute, 101 Park Ave., New York 17, N. Y. 4 pp. 8½ x 11".

To clarify tile manufacturers' color designations to the building industry, the Asphalt Tile Institute has issued this color chart. It indicates in a simple code system the items in each company's line which have similar coloring to those made by other firms.

**FLOOR COVERING INSTALLATION.** New Carpet Beauty with Smoothedge. The Roberts Co., Los Angeles, Calif. 8 pp. 9 x 6".

A way to install carpeting without tacks is described in this full color booklet. The fastener used in the method is *Smoothedge*, a plywood strip with projecting pins which grip the warp of the floor covering from beneath so that no unsightly indentations are created at the carpet edge. It is described as being suitable for use on concrete and wood floors.

see

*kwikset's*

newest

*time saver*

\*

*adjustable strike* →

a simple device now makes it possible to move  
the opening which receives the latchbolt 1/8"  
without cutting new mortise.

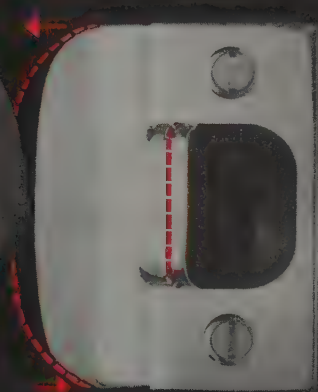
Loosen the screws slightly and the pressure of a  
fingertip compensates for door warping,  
added layers of paint and other causes of faulty alignment.

See the latest kwikset time and money saver—  
your jobber has it now.

*kwikset sales and service company, anaheim, california*

**kwikset**  
CORPORATION

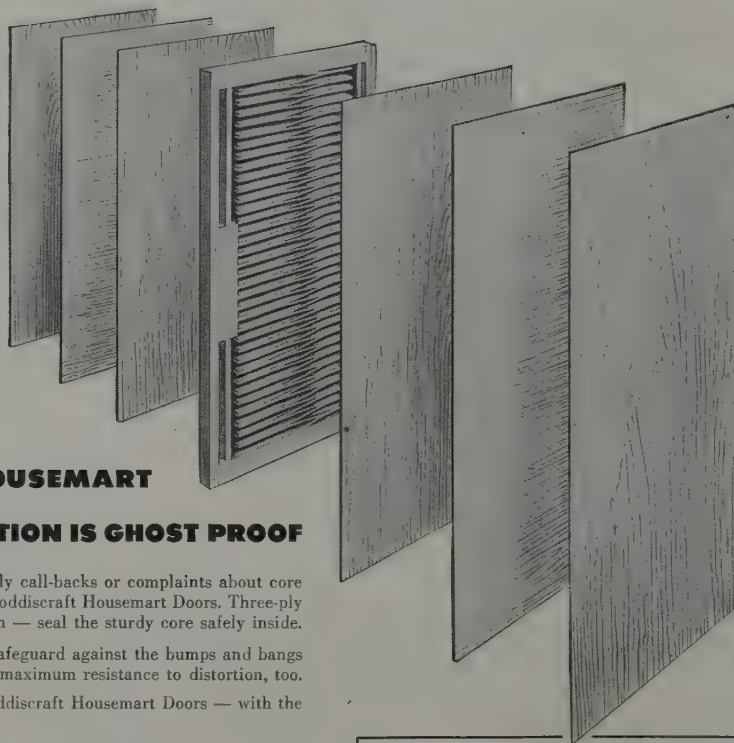
\* OPTIONAL AT NO EXTRA COST







# EVER HAUNTED BY CORE PATTERN GHOSTS?



## Roddiscraft HOUSEMART 7-PLY CONSTRUCTION IS GHOST PROOF

You'll never be haunted by costly call-backs or complaints about core pattern showing through, with Roddiscraft Housemart Doors. Three-ply face panels give triple protection — seal the sturdy core safely inside.

Seven-ply construction is a safeguard against the bumps and bangs a door is bound to get — offers maximum resistance to distortion, too.

Why take less — specify Roddiscraft Housemart Doors — with the 7-ply construction.

### NATIONWIDE Roddiscraft WAREHOUSE SERVICE

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## Roddiscraft

RODDIS PLYWOOD CORPORATION

Marshfield, Wisconsin

# HOW J & L JUNIOR BEAMS SAVE TIME, SOLVE DESIGN PROBLEM AT LOW COST IN ST. CHARLES SCHOOL YOUNGSTOWN, OHIO

Architect P. Arthur D'Orazio and George J. Murphy Company, contractors-engineers, of Youngstown, Ohio, have employed lightweight J&L Junior Beams as cantilevered roof purlins at the Boardman Center's ultra-modern St. Charles School near Youngstown. J. A. McMahon, Ltd., Niles, Ohio, fabricated the 85 tons of structural steel and 35 tons of Junior Beam joists going into the framework.

Notched over lintel beams and cantilevered four feet beyond the outside walls, J&L Junior Beams support not only the roof but also an attractive permanent sun shield over classroom window walls.

Because of their versatility and adaptability, J&L Junior Beams go far towards meeting the demands of today's builders. They cost less to buy and less to erect. Lightweight, 12" Junior Beams, 11.8 lbs. per foot, 30 ft. long, may be easily raised, placed and bolted directly into position by three men with the aid of only a hand-operated winch.

The lightweight and consequent ease with which Junior Beams can be handled led to fast, economical construction that helped hold building costs to a minimum. ALL STRUCTURAL STEEL INCLUDING THE JUNIOR BEAM ROOF PURLINS WAS ERECTED BY 6 MEN IN 2 DAYS.

## ARCHITECTS — CONTRACTORS

If you're engaged in the design, or construction of light occupancy buildings, you'll be interested in these features offered by J&L Junior Beams. EASY TO INSTALL, RIGID, VIBRATION RESISTANT, SHRINK PROOF, LOWEST DEFLECTION FACTOR OF ANY STRUCTURAL SECTION OF EQUIVALENT WEIGHT.

Why not write today for our new booklet: "Skyscraper Construction for Every Building"? It shows how Junior Beams are used as floor joists, and roof purlins with loading and spacing tables for various spans.

**JONES & LAUGHLIN STEEL CORPORATION**  
PITTSBURGH 30, PA.



Jones & Laughlin Steel Corporation  
401 Gateway Center Building No. 3  
Pittsburgh 30, Pa.

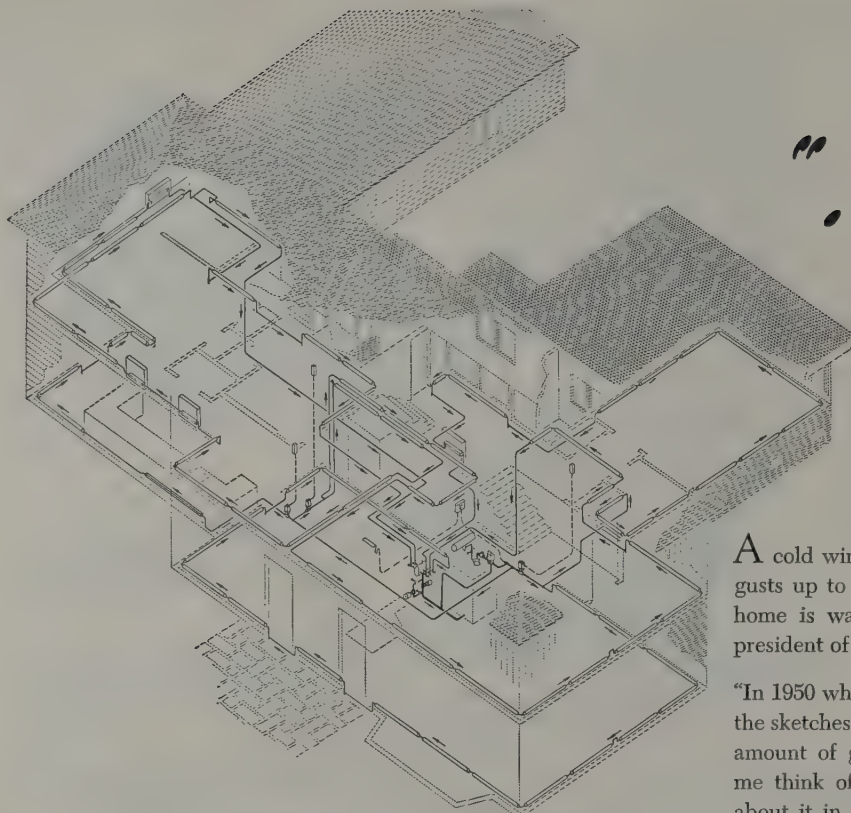
Please send me a copy of the booklet entitled,  
"Skyscraper Construction for Every Building."

Name

Company

Address





Heating plan for the Hinman home. Webster CF-2 Unit provides master control. Duplex clock thermostats provide overheat limit control for each of three zones, as follows: (1) Living room and dining

room. Also includes one bedroom and bath. (2) Kitchen wing and servants' rooms. (3) Bedrooms on the second floor. Heating installation made by Seaman & Muller, Port Washington, Long Island.

# "... like a regardless of

Installation with Tru-Perimeter Forced Hot Water Baseboard Heating ... 5 Circuits ... 3 Zones ... Outdoor Thermostat Control

A cold wind whistling in off Long Island Sound with gusts up to 60 miles an hour ... and yet the Hinman home is warm and comfortable. George R. Hinman, president of Pioneer Scientific Corp., says:

"In 1950 when my Architect, Julius Gregory showed me the sketches for our new house, I was struck by the large amount of glass. This and the exposed location made me think of Webster Baseboard Heating. I had read about it in *House Beautiful*."

"Now we have been through two complete heating seasons. Temperatures everywhere in the house are like a balmy night in June, regardless of outdoor weather conditions. There are no hot spots from radiation, no warm gusts from heating vents."

Webster Baseboard Heating is tru-perimeter heating with forced hot water. Behind the metal baseboard



The home of George R. Hinman, with its commanding view of Long Island Sound, presented a heating challenge because of its exposed location and wide expanse of glass. Mr. Hinman says: "I asked my architect about Webster Baseboard Heating and we agreed it was the logical solution. How right we were!" Julius Gregory, A.I.A., was the architect. Wesley Copp, of Sands Point, was the builder.



# balmy night in June

## outdoor weather"

enclosure, the Webster heating element carries hot water round and round each heating circuit. Nothing too hot to touch. No cold walls. Floors are warm even with floor-slab construction. There is no feeling or smell of heat. No fast-rising currents of heated air — it's the new clean heating. You can place your furniture wherever you wish. Nothing to interfere with wall-to-wall carpeting. Proved in many thousands of installations.

For a heating system that will match the truly fine home, consider Webster Tru-Perimeter Heating. Your Webster Representative will give you full details. Or write us,

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**WARREN WEBSTER & COMPANY**

Camden 5, N. J. Representatives in Principal U. S. Cities

*In Canada, Darling Brothers, Limited, Montreal*

# Webster

**TRU-PERIMETER FORCED HOT WATER  
BASEBOARD HEATING**



Above: the inconspicuous Outdoor Thermostat of the Webster Control. Below: Webster Continuous Flow Control Cabinet provides convenient manual control for use if desired. Permits choice of Automatic, Off or Full Heat. Variator provides for step-up or slow-down.



In this dining room with a view, Webster Baseboard Heating raises a curtain of warmth in front of the picture window. Even on the coldest day, there is no feeling of chill or draft. The Baseboard enclosure is painted to harmonize with room decor.



The master bedroom with glass on three sides is comfortable at all times — with mild heat in mild weather, full heat when the outdoor temperature falls or high winds blow. Damper is visible at left.

Webster Baseboard heating is mild heat — it's especially important in the library the Hinman home. And see how inconspicuous it is.





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THE RANGE THAT MAKES GOOD COOKS BETTER



*Now, for appealing,  
flexible kitchen arRANGEments*

## NEW L&H "CUSTOM-BILT" (TRADEMARK) built-in electric range components



The built-in range is here! Decorators and designers proclaim the death of the "laboratory look" as the new ranges blend into modern kitchens.

And L&H, pioneer in the electric range field, gives you the "Custom-Bilt," the last word in flexibility, beauty, and quality — for big homes or little.

Women love the huge wall oven (it holds six two-lb. loaves of bread) that can be installed at any height, ends awkward stooping. Surface units come in multiples of two, permitting

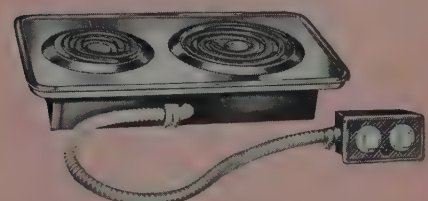
the right range capacity for every family. Switches and signal light can be installed wherever wanted.

Unit surfaces and oven fronts are stainless steel — bright, beautiful, saleable.

And every part is backed by the L&H reputation for quality and long life. Investigate the possibilities of the L&H "Custom-Bilt" electric range components.

**A. J. Lindemann & Hoverson Co.**  
The Finest in Home Appliances Since 1875  
Milwaukee 15, Wisconsin

**No. 5810 Oven** with Automatic Time Control and electric clock, Oven Temperature Control with automatic pre-heat, interval timer, appliance outlet, oven light. Heavily insulated with Fiberglas. Inside size: 16" x 17" x 19 1/4"



**No. 5810-U Surface Unit**  
with two Monotube heating elements, one 8 inches and one 10 inches.

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# CRANE

## chore-center kitchen



"Open House." Space flows together in one unified work-area—a functional, labor-saving heart of the house. Freezer, refrigerator, range, sink, clothes washer, laundry tubs, ironer, sewing machine are all gathered here, built-in for better appearance and usefulness. See details in Crane's "Sketchbook of Ideas."

## *An unusual idea combining facilities in one work-saving room*

The basic idea here is simply this: A kitchen today can be a step-saver where a housewife can do all her chores—sew, wash, and iron as well as store food and prepare meals.

This Chore-Center kitchen is one of forty-eight rooms in the new Crane "Sketchbook of Ideas," one of the key features of Crane's new service to architects who specialize in designing homes. You can use this remarkable book to help your clients visualize and select new arrangements for

kitchens, bathrooms, and utility rooms.

If you want information on any of the rooms in the book, we can provide data including suggestions for room arrangements and decorating that will help to relieve you and your staff of much time-consuming detail work.

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Now you can *increase* your closet space, and *decrease* costs with the new U. S. Sliding Door's modern prefabricated wall storage units. Using them in combination to replace *inside* partition walls, expensive wood-stud and plaster construction is eliminated. This means more usable storage space per square foot of closet and lower construction costs.

ECONOMIZER units may be used singly or in groups, and feature the added advantage of high quality, low cost construction. You'll welcome the smooth, smooth operation of the nationally known U. S. Sliding Doors too. Wardrobes are available in 3', 4', 5', and 6' units, all 24" deep. Linen closets are available in 26" width by 18" depth with swinging doors, as well as standard 3' and 4' units with sliding doors and shelves. You can have your ECONOMIZER Wall Storage Units in fir, gum, and beautiful birch finishes.

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Please send me, without cost or obligation, your catalogue and complete information on ECONOMIZER Wall Storage Units. I am interested as a

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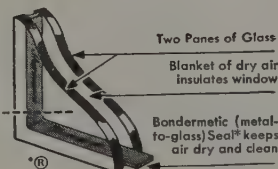


*Thermopane*

LOOK FOR THE NAME ON THE SEAL BETWEEN THE PANES



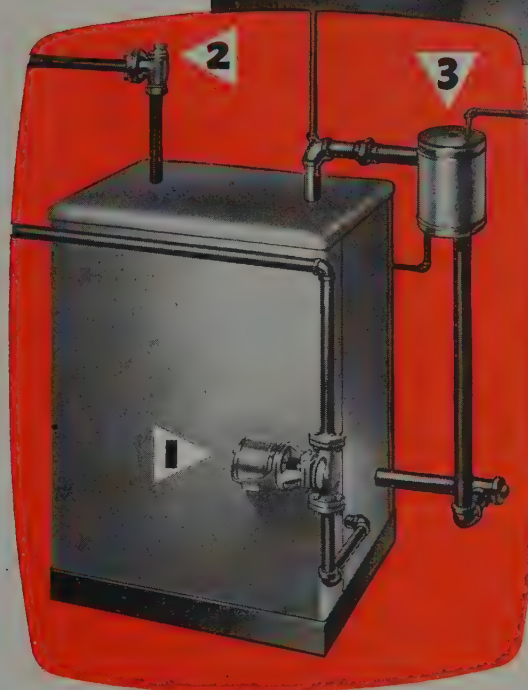
FOR BETTER VISION SPECIFY THERMOPANE MADE WITH POLISHED PLATE GLASS



# B & G Hydro-Flo Heating

WITH BASEBOARD HEATING PANELS

FOR RADIANT  
SUNNY WARMTH  
AND  
BEAUTY TOO



## THREE GREAT COMFORT-ECONOMY FEATURES!

No wonder this combination for winter comfort and home beauty is being installed in so many new homes!

Consider these features: Radiant sunny warmth from heating units which look like conventional wooden baseboards *and are just as unobtrusive!* No over or under-heating—the B & G Hydro-Flo System automatically adjusts the heat supply to the weather! Heat is evenly distributed—draftless—virtually the same temperature from floor to ceiling!

Next, an all year 'round supply of hot water for kitchen, laundry and bath, *heated by the same boiler that heats the house.* Plenty for automatic washers, showers—and at amazingly low cost!

And finally—fuel economy! The automatic modulation of the heat supply prevents fuel waste—keeps heating cost at rock bottom. This accurate control is especially valuable in spring and fall, when only a little heat is needed.

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AS SUNSHINE



YEAR 'ROUND  
HOT WATER



LOW OPERATING  
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B & G Hydro-Flo Equipment can be installed on any hot water heating boiler

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shed water,  
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Water soaks  
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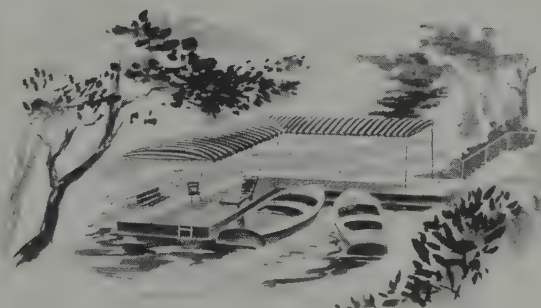
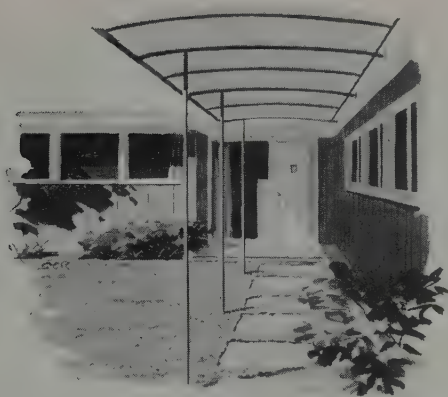
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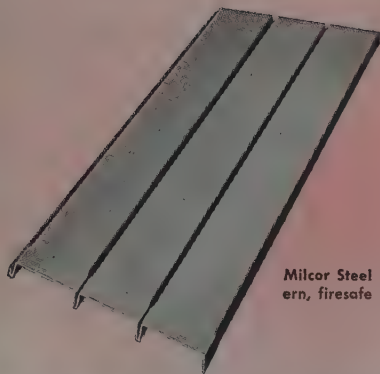




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**MILCOR**



...trademark of Inland Steel Products Co., a member of the Inland Steel family of steel-producing and fabricating enterprises — for half a century, your partner on the building sites of America

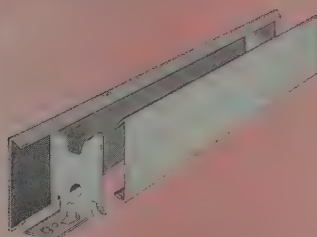
Over the past 50 years, Milcor developments have done much to make steel a standard material in all types of building.

Today, with *Milcor steel products*, you can design and erect a complete, coordinated system of plaster reinforcement and interior trim to meet any condition of fire-safe construction.

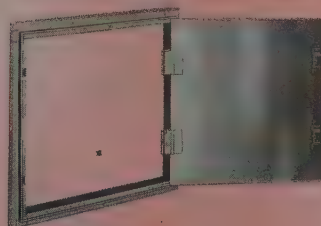
Milcor originated and patented Expansion Corner Bead and provides the industry's most complete corner bead line . . . Milcor pioneered the use of

metal trim in both public and residential building . . . Milcor improved the mechanical efficiency of erecting solid-plaster partitions for fire-resistant non-bearing walls.

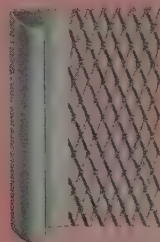
Consider this "know-how" — and the many raw material resources and production facilities of Inland Steel Company — these add up to why Milcor will continue to be *first* with the finest steel building products — products that are easier to use, look better and do a better job.



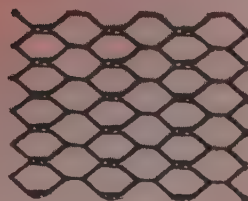
Housing Base for use with solid-plaster or wallboard partitions, furred or masonry walls.



Access Doors for plastered walls, for masonry, brick, stone, tile, etc.



Complete line of Metal Casings, solid and expanded wing.

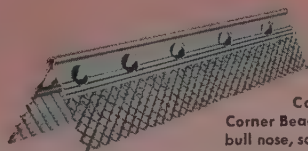


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Complete line of Corner Beads; small nose and bull nose, solid and expanded wing.

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one of three plants that provide more than 750,000 sq. ft. of production facilities.

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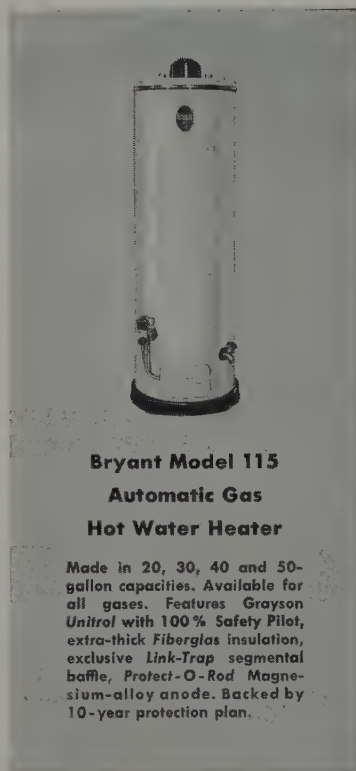
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**says R. D. Terhune,**

**Bryant, Paterson Branch Manager**

If it's *big values* you're interested in (and who isn't these days?), you've probably found that low prices mean little unless the product is *right*—and without a lot of servicing. That's one reason, perhaps the biggest reason, why Bryant Water Heaters are going into more and more homes in my territory. Home builders know they can depend on Bryant—for good products, good performance, year after year. Householders, too, know Bryant—a real advantage in "selling" the new homeowner. And what features Bryant offers: completely automatic operation . . . typical Bryant dependability . . . plenty of hot water . . . fast, easy temperature selection . . . cleanliness and economy . . . cathodic tank protection . . . all backed by a 10-year protection plan.

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Made in 20, 30, 40 and 50-gallon capacities. Available for all gases. Features Grayson Unitral with 100% Safety Pilot, extra-thick Fiberglas insulation, exclusive Link-Trap segmental baffle, Protect-O-Rod Magnesium-alloy anode. Backed by 10-year protection plan.

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● John S. Madore has built as many as 70 Gunnison Homes in two months! He started his Gunnison Home Dealership in 1947 as a one-man operation in State College, Pa. Since then, he has built a total of 169 Gunnison Homes within a fifty-mile radius of State College. All these operations have been highly successful.

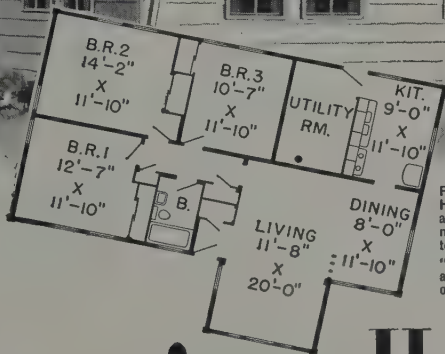
Mr. Madore does a big volume of business on relatively small capital. This has been done by—

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Figure it out for yourself. Many Gunnison Dealers in communities from New England to Denver, are building 50 . . . 100 . . . even 500 homes yearly. After foundations are in, homes are completed in a matter of weeks—not months! Your money turns over faster. You eliminate most of your shortage problems in materials and manpower. It's a better deal any way you look at it.

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If you are a successful builder, realtor, or substantial businessman, your future can be unlimited with Gunnison. Since 1936 this organization has been the leader in prefabricated homes. It is the Home Manufacturing subsidiary of the United States Steel Corporation — an unparalleled advantage. For complete information send the coupon.



Popular new Catalina Ranch Type Home with large "L" shaped living and dining area. One of many Gunnison Homes which sell in the \$7000 to \$12,000 range.

"Gunnison", "Champion", "Coronado" and "Catalina"—Trade Names of Gunnison Homes, Inc.

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# Gunnison Homes

*A lot of home for a little money.*

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# "Modern houses have **electric** water heaters,"



This Knoxville house designed by Mr. Bartling and built by Fonde-Bartling, has exterior of weatherboard concrete block, electric ceiling radiant heat, and louver type sash. And the two water heaters . . . of course, they're **ELECTRIC!**

says Knoxville builder **M. L. BARTLING, Jr.**



"For the last 13 years we have specialized in all-electric houses," says Mr. Bartling, "featuring not only electric water heaters but electric heat as well. We have built them in all price ranges up to \$40,000. People buying *any* size house today insist upon really automatic hot water. With the *Electric* Water Heater we can give them what they want. The cleanness of operation pleases them, too—as does the economy of operation due to the short hot water lines and the fully-insulated tank. We find installation easy, because there's no flue or vent. Heating water electrically is the modern method for the modern house."

*Equip Your Homes with*  
**electric water heaters**

**THEY'RE WHAT  
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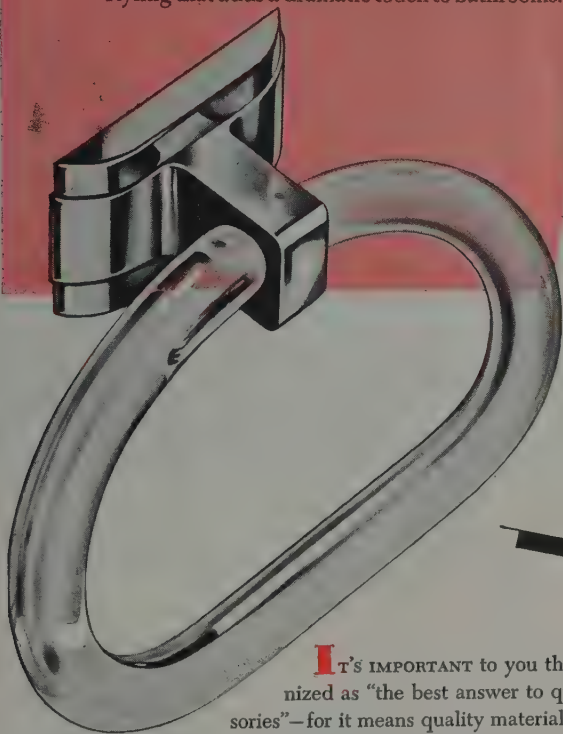
# STYLE

Style has a definite place in today's bathroom design—for the bathroom accessories you choose today will do much to determine the appearance and convenience of your bathroom for years to come.

This new Crystalcrome towel ring is the latest addition to Hall-Mack's Crystalcrome line of bathroom accessories—and it combines sparkling beauty and sensible utility in a new styling that adds a dramatic touch to bathrooms.

The large stirrup-type towel ring is made of solid, crystal clear Lucite which will not break or discolor—and has a chrome plated base. Two rings—fastened to the wall or door—a "Mr." and "Mrs." pair—will add beauty and convenience to any bathroom.

This is but another example of Hall-Mack quality—expressed "STYLE"—another reason why Hall-Mack is the only answer to Quality Bathroom Accessories.



**I**T'S IMPORTANT to you that Hall-Mack is recognized as "the best answer to quality bathroom accessories"—for it means quality materials and fine construction—it means that the accessories you choose will have lasting style and enduring beauty—it means that whatever your taste, whatever your budget—Hall-Mack has the right accessory to supply every bathroom need.

Within four popular lines—Crystalcrome, Coronado, Tempo and China-Vogue—you can select Hall-Mack accessories for every bathroom style and budget!

## HALL-MACK COMPANY

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# "Thanks for helping us sell

Meet Mr. L. D. Paschal  and Mr. J. W. D. Paschal  of Louisville, Ky.

They erected a model home with a G-E Kitchen-Laundry and immediately sold 40 houses.



Here they are calling back on one of the buyers of their Yorkshire Homes after she had lived in it for six months.



"My wonderful G-E Dishwasher and Disposall® saves me at least two hours a day, Mr. Paschal. There's no garbage for me to carry out. I just wash it away . . . and I do the day's dishes once, after the evening meal. No dishes for hubby to *dry*, either!"



"Along with the many extra conveniences there's plenty of space for bottle storage in our G-E Refrigerator—which is quite important when you have a nine-month-old baby boy. We're never cramped for storage space. There's room for everything—even on week ends!"

---

## Building low-cost homes?

### Here's a tip for you.

**E**VEN UNDER TODAY's rigid credit restrictions, and higher down-payments, a low-income family can afford a General Electric Kitchen-Laundry.

You can include the cost of a General Electric Kitchen-Laundry in the long-term mortgage. It adds as little as \$3.50 a month extra in monthly payments.

#### What one of the brothers found

"Even in times of higher down-payments I find that my houses are sold ahead of my building.

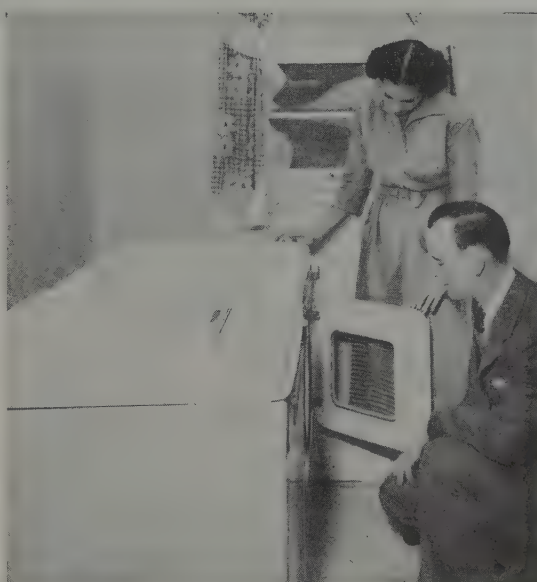
# our houses!"

"We're calling to hear what you think of the G-E Kitchen-Laundry, Mrs. Engle," says one of the Paschal brothers. "We want to know whether you are still as enthusiastic about G-E equipment as you were the day you signed up for the house."

"So glad you dropped by. I'll be glad to give you my reactions," says Mrs. Engle.



"I used to cook with gas, Mr. Paschal, so I feel I can't praise my General Electric Range enough. It's so very much cleaner, and there's no odor from the units. Not only does it cook fast, but the oven is cool even in the middle of summer."



"I wash just about every day of the week, but it takes no time to speak of because I just put the clothes in my G-E Washer and G-E Dryer and they come out so fluffy and smell oh-so-good. Mr. Paschal, I want you to know that I'm sincerely pleased with my G-E equipped home!"

"There is no question in my mind but that the G-E Kitchen-Laundry is one of the *best* selling features a builder can put in his houses."

"These are two reasons why I chose General Electric. The first being their leading national acceptance and the second because they could

furnish all the appliances to make up a kitchen and laundry under one brand name. Thanks for helping us sell our houses!"

Wouldn't it be a good idea for you to get in touch with your G-E distributor, or to write to G. E. now? General Electric, Co., Louisville 2, Ky.

GENERAL  ELECTRIC





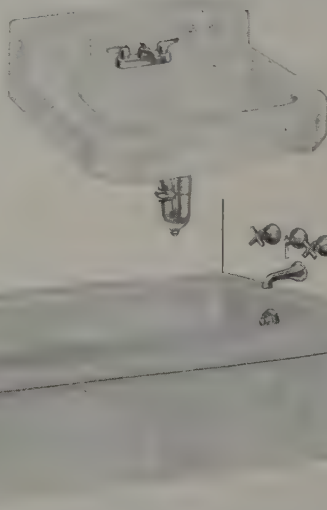
## 1054 AllianceWare Tubs 1054 AllianceWare Lavatories

help the Marines do a personal "Clean-Up" job at Camp Le Jeune

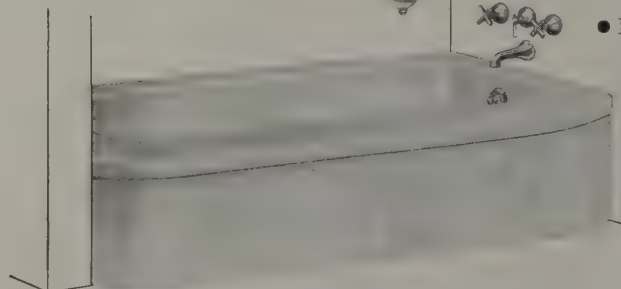


*Vista of Tarawa Terrace  
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Carolina. All Alliance-  
Ware fixtures furnished  
by Atlas Supply Co. and  
installed by Heffner  
Plumbing Company,  
Charlotte, N. C.*

**Whether it's one tub or a thousand, AllianceWare provides:**



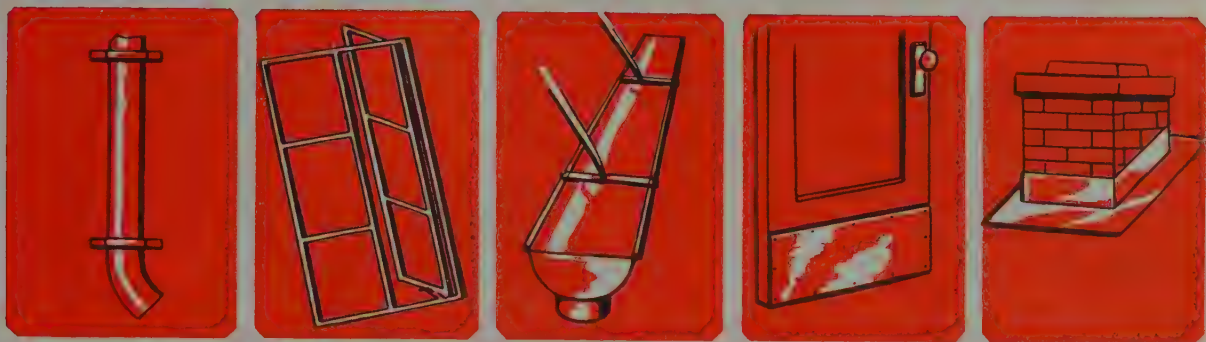
- Enduring Beauty in Modern Design.
- Stainproof, gleaming porcelain enamel of high quality.
- Formed metal construction of heavier gauge steel than required by Federal specifications.
- Lighter weight for easier handling and installing.
- Installation features that fulfill all F.H.A. requirements.



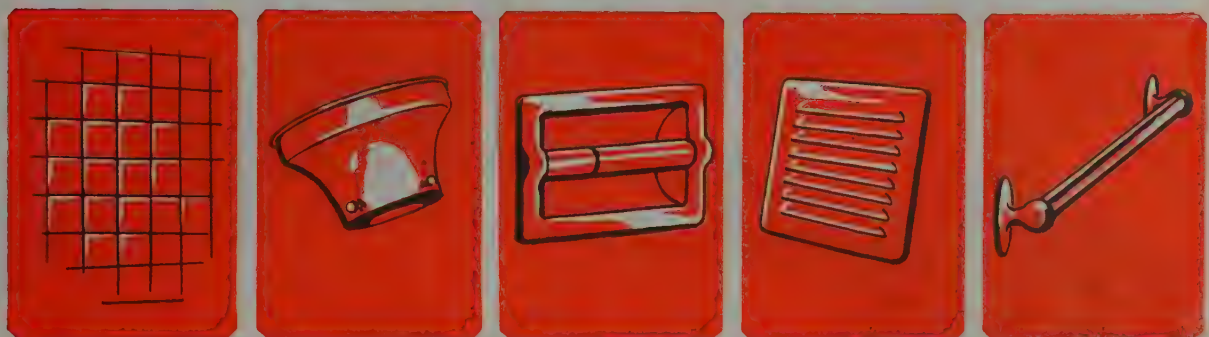
**ALLIANCEWARE, INC.** • Alliance, Ohio  
Bathtubs • Lavatories • Toilet Combinations • Sinks

**AllianceWare**  
PORCELAIN ON STEEL

If you are a manufacturer of building materials



and are caught in the critical material squeeze



and are looking for a way out...

Many manufacturers of building materials find their production seriously threatened by NPA directives limiting or prohibiting production of their products from critical materials. Especially hard hit are manufacturers of building materials normally made of 18-8 stainless, brass, copper, aluminum, or chrome plated.

If your operations fall in any of these categories, then you will want to know more about Sharon '430' Stainless Steel. It is the best available material today for many such applications. Sharon '430' is a straight chromium grade of stainless with a record of successful application.

It is readily available with few restrictions as to end use. It may fit your production setup perfectly. If so, your critical material worries are ended.

Get the facts on this popular stainless today. Contact your nearest Sharon representative or write direct. Engineering data and technical assistance are available without obligation. A new booklet describing how to use Sharon '430' Stainless may be obtained by writing direct to **Sharon Steel Corporation, Department 1652 Sharon, Pa.**

Those manufacturing gutters, downspouts, flashing, etc., will want a copy of the new information-packed booklet *Sharon '430' for Better Roof Drainage Systems*. Available from district sales offices or by writing direct.

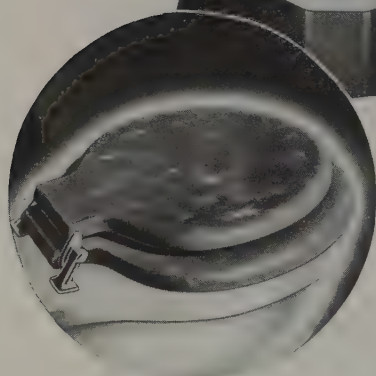
your answer is *Sharon* **430** *stainless steel*





*Distinguished  
companion to*  
**THE BEST SEAT  
IN THE HOUSE®**

*Church Gothic  
Tile, with  
distinctive  
contour face,  
shown in a  
Provincial  
style bath*



**No. 840 Church Regal Seat**

Church Seats, in plain or pearl finish, come in 32 colors. Their quality is as obvious as their beauty. At better plumbing stores everywhere.



For over thirty years Church Seats have offered architects a quality product with a national reputation, instantly recognized and accepted as . . . "The Best Seat in the House".

Now Church Plastic Wall Tile, made to the same high standards, backed by the same integrity, meets the architect's demand for a wall covering that is economical, easy to apply, permanently beautiful — and at home anywhere.

Light in weight (less than half a pound per square foot) Church Tile requires no expensive supporting construction, can be applied to any clean, smooth surface; is crack-, chip-, warp- and fade-proof, and immune to moisture, grease and common acids and alkalis.

Five complete lines and a range of 23 beautiful, decorator-authenticated colors to choose from. Ideal for new homes or old, and for commercial, industrial and institutional applications.

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## \$2,750

f.o.b. Port Washington, Wis.

PH1-EA228S-52 Enterprise

**N**OW you can crack the big, profitable low-cost housing market. You'll be able to sell ruggedly-built, hand-somely styled homes in the \$7,000 range, *practically anywhere* with the \$2,750 P & H Enterprise Home.

This 2-bedroom home (PH1-EA228S-52)—the most complete prefab package on the market—is just one model in the new low-cost Enterprise Line. This line offers you 2 or 3 bedroom models, 672 to 864 square feet, in 18 different exterior designs.

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Take advantage of the booming low-cost market now. Sell P & H. Write for details today.

### HERE'S WHAT YOU GET in the \$2,750 Package

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at Any Price

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- gas or electric water heater
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- Rusco metal windows, screens
- full size picture window
- prefitted fir panel doors
- rugged room-size wall panels
- complete gable and roof panels, trusses
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- predecorated gypsum board ceilings
- side wall and roof shingles
- felt building paper, cornice, trim lumber
- all hardware
- Van Packer chimney
- shipped on one trailer truckload

### P & H CAPITALINE HOMES . . . for luxury living

Architect-designed, these P & H Homes have all the styling, construction and convenience features that buyers look for. And they have all the features that mean higher sales and lower costs for you. 44 elevations, 6 floor plans, all reversible. Basement or utility room models, 2 or 3 bedrooms. Write for free booklet today.



PH4-B336-52—Capitaline



## HOMES

DIVISION



## HARNISCHFEGER CORPORATION

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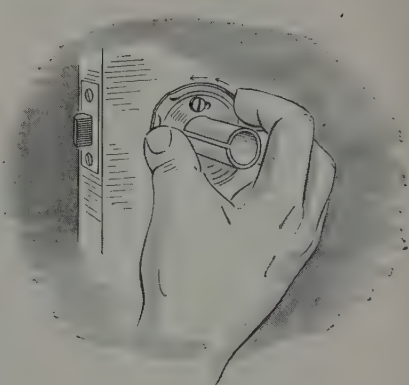
*Better Homes For More People At Lower Cost*



# One of the many extra-benefit features built into

## NATIONAL LOCKset

Patent Applied



**CLAMP PLATE ENGAGES SCREW HEAD...  
MERELY TIGHTENING CLAMP PLATE SCREWS  
FIRMLY FIXES LOCK ASSEMBLY IN DOOR  
...SAVES VALUABLE INSTALLATION TIME**

Shown here is another step in NATIONAL LOCKset's remarkably simple installation procedure. Extensively field proven on the job, NATIONAL LOCKset is fast becoming the Number 1 favorite among contractors, builders and architects because of its important savings of valuable time.

### AMERICA'S OUTSTANDING LOCKSET VALUE

Compare NATIONAL LOCKset point for point with any other lockset on the market. Note the use of rust-proofed, selected cold rolled steel in the lock mechanism. Note the absence of any die-cast parts.

Examine its exclusive engineering features. Make your decision only after you have investigated NATIONAL LOCKset thoroughly.

### NATIONAL LOCKset

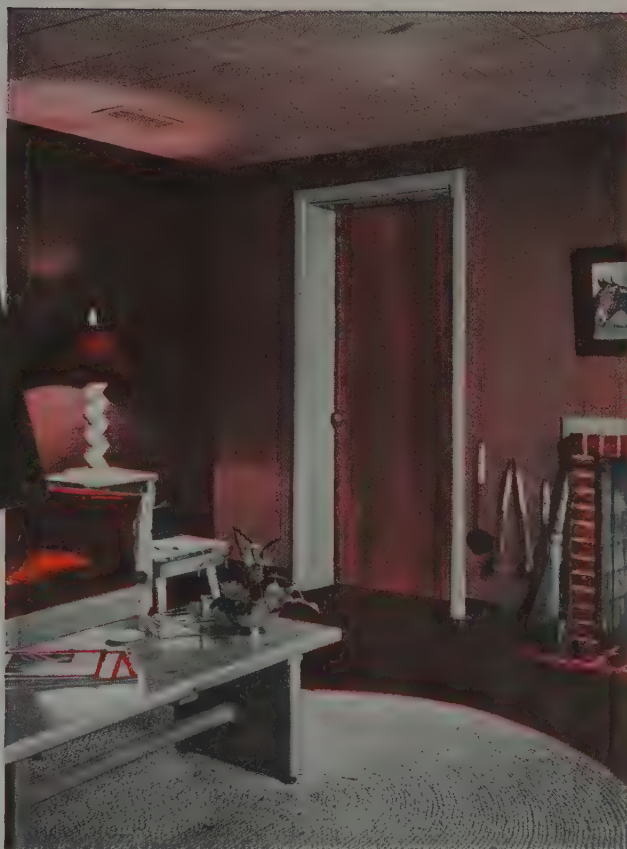
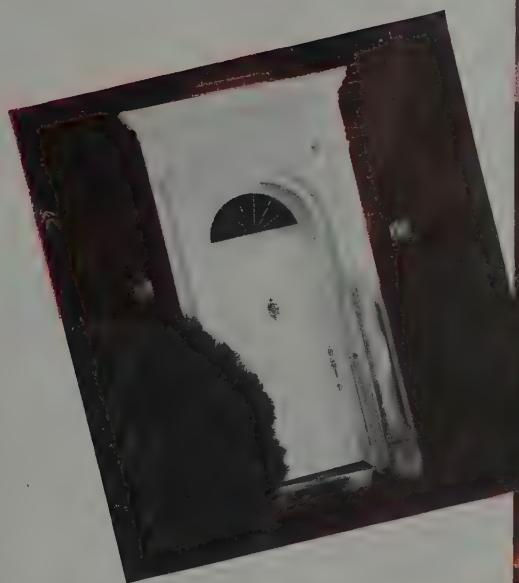
KEY LOCKS  
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**Available From Your Supplier**



DISTINCTIVE HARDWARE...ALL FROM 1 SOURCE  
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Rockford, Illinois • Merchant Sales Division



# MENGEL MAHOGANY Flush DOORS

*add Greatly to House Values-*  
**YET COST LESS THAN MANY DOMESTIC WOODS!**

Everyone knows the sales magic of "Mahogany". The very *word* means extra luxury, extra quality, extra value. . . .

Now Mengel offers you *Mahogany* Flush Doors at remarkable savings.

**You can equip any building with these beautiful African Mahogany doors for less than comparable doors faced with many domestic woods!**

Why? Because The Mengel Company operates its own logging concession and mill in the best Mahogany section of Africa, and imports this King of Woods in tremendous volume. Then Mengel manufactures its famous doors in two of America's greatest factories, geared to the mass production of highest-quality doors.

Choose Mengel Mahogany Doors and you get doors of unbelievable beauty. In both Hollow-

Core and Solid-Core types, they are the *greatest door values in America!*

Enlist the Magic of Mahogany in your own projects. Mail the coupon for all the facts, *now!*

The Mengel Company . . . America's largest manufacturers of hardwood products • growers and processors of timber • manufacturers of fine furniture • veneers • plywood • flush doors • corrugated containers • kitchen cabinets and wall closets



THE MENGEL COMPANY  
Plywood Division, Louisville 1, Ky.

Gentlemen: Please send me full information on Mengel Mahogany Flush Doors—Hollow Core and Stabilized Solid Core.

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*Andersen Casement Windows now also available with ventilating sash 4½" wider than those illustrated*

FRAME A RESTFUL PICTURE with

**ANDERSEN**

*Windowalls\**



A BEAUTIFUL VIEW deserves a beautiful window treatment . . . and what can do the job better than an Andersen WINDOWALL? Here the architects have used a stock Andersen Casement Picture Window Unit.

It opens to a lake view and lake breezes as a window. It presents a highly weather-tight wall to cold and rain. Both window and wall, it's a WINDOWALL . . . a fine window unit made of beautiful wood.

\*TRADEMARK OF ANDERSEN CORPORATION

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FAMOUS FOR COMPLETE **WOOD WINDOW UNITS**

*Write for Detail Catalog or Tracing File; or see Sweet's files for specification data. WINDOWALLS sold by millwork dealers.*



# NOW, *Pushmatic*® protection for homes



Attractive BullDog XD Electri-Center is convenient, safe. Handles all lighting circuits, plus your range, dryer, attic fan and other service appliances, present and future.\* Baked gray finish; can be painted to match walls.

## With new, low-price BullDog Electri-Centers

(Successor to the Fuse Box)

Here's truly modern, safe circuit protection for the home, packed with advantages for owners and builders alike.

BullDog's new XD Electri-Centers, featuring famous Pushmatic® circuit breakers, provide for every electrical requirement — *lighting, appliances, service items*\*. Just one inexpensive panelboard does away with a welter of fuse boxes, separate switches and costly excess wiring, now or in the future.

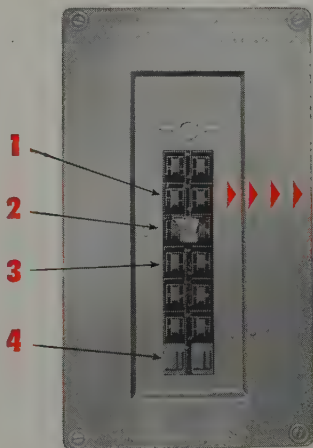
The housewife, especially, will like the safe, simple way Pushmatic works. When lights go out, all she need do is look for the individual Pushmatic that says "OFF," then push it "ON." Presto ... lights go on again (unless trouble still exists). There's no resetting to complicate things. No fuses to track down and change. No danger whatsoever. Pushmatics work that easily, that safely.

You can get the full story on these great new BullDog XD Electri-Centers by contacting a nearby BullDog Distributor, or by sending coupon.

\*Code (Art. 230) permits 6 subdivisions of main services.

### ONE CENTRAL CONTROL FOR ALL CIRCUITS

Internal split bus bar separates panel into two groups of circuits. Pushmatics in upper section (1) provide individual protection and disconnect for 1- or 2-pole appliances. Tie handle (2) joins two 50-amp. Pushmatics that serve as convenient Main Disconnect for all branch lighting circuits in lower section. Space for 8 to 10 lighting circuits (3), depending on XD model. Unused circuits (4) can be plugged with filler plates, used when needed. Two models: this one with 12 circuits plus Main Disconnect for lighting; one with 18 circuits plus Main Disconnect.

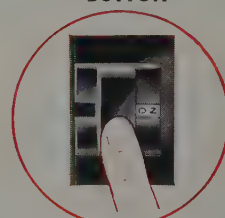


### SAFER, AUTOMATIC PROTECTION



Here's safe, modern circuit protection unmatched anywhere. Individual interchangeable Pushmatic circuit breakers rupture circuits instantly whenever short or overload occurs. Foolproof. Trip-free. Give safe, automatic protection always. Guaranteed. Listed by Underwriters'.

### JUST PUSH A BUTTON



No resetting. Just one PUSH restores service, unless trouble still exists. Never any fuses to buy, no inconvenience. Rugged Pushmatics bolt to bus bars in a jiffy, never shake loose, need no servicing. Available in 15-, 20-, 30-, 40- & 50-amp. ratings to meet all present and future loads.



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DETROIT 32, MICHIGAN • FIELD OFFICES IN ALL PRINCIPAL CITIES  
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**PIONEERS IN FLEXIBLE ELECTRICAL DISTRIBUTION SYSTEMS**

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MAIL

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Detroit 32, Michigan

Gentlemen: Please send me free bulletin on your Type XD Electri-Centers for homes.

Name \_\_\_\_\_

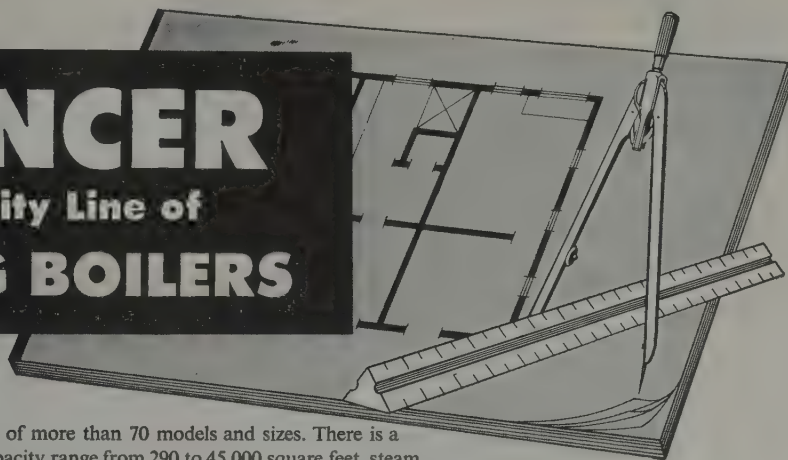
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# SPENCER

The Quality Line of

## HEATING BOILERS



Spencer offers a wide selection of more than 70 models and sizes. There is a Spencer Boiler for every capacity range from 290 to 45,000 square feet, steam. The Spencer name means precision engineering, skillful manufacture and guaranteed service.

### 3 SPENCER LINES ESPECIALLY SUITABLE FOR HOMES

Versatile, dependable, backed by more than 60 years' leadership . . . designed for quick, easy, economical installation . . . easily convertible . . . compact size and neat appearance . . . economical heat, instantaneous hot water.

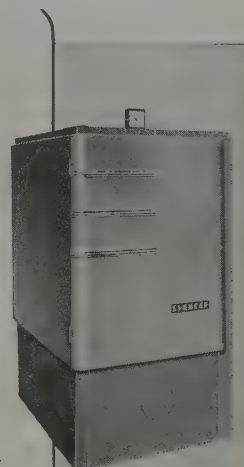


**"R" SERIES**—a versatile steel heating boiler—5 sizes available, in capacities ranging from 320 to 900 square feet, steam.

- Famous Spencer peaked firebox aids in more efficient combustion
- Boiler tubes staggered to provide quick heat transfer
- Available with either standard or extended jacket

**"C" SERIES**—a smartly styled, modern steel heating boiler—9 sizes available, in capacities ranging from 570 to 3000 square feet, steam.

- A three-pass type boiler
- Heavy-duty doors and water-cooled frames.
- Attractive beauty jackets, standard or extended



**"21" SERIES**—the new all-purpose cast-iron boiler—8 sizes available, in capacities ranging from 340 to 1,000 square feet, steam.

- Utilizes any type fuel—whether mechanically or hand fired
- Available with built-in hot water coil
- Especially suitable for homeowners who plan to convert later to a different type of fuel or firing



**FOR ECONOMICAL HEATING WITH ANTHRACITE OR PEA-SIZE COKE, SPENCER OFFERS YOU ITS FAMOUS MAGAZINE-FEED LINE.**

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Spencer Heater, 652 Oliver Street, Williamsport, Penna.





Can we put  
resilient tile floor-  
ing over radiant  
heating?



Of course!  
I've been working  
closely with the Kentile  
Flooring Contractor  
on all my radiant  
heating jobs.

## You can specify Kentile, Kencork and KenRubber\* for most Radiant Heated installations

Specialized flooring problems call for specialized training and experience. And, no man is better qualified to help you solve the problem of selecting and installing specialized flooring than the Kentile Flooring Contractor. His years of working closely with architects and builders have equipped him with the precise knowledge needed to recommend the right floor every time...the one floor

that provides the longest wear at the lowest cost ...the greatest maintenance economies.

Even if your problem results from architectural design or construction methods recently developed, the Kentile Flooring Contractor is prepared to give you valuable assistance. For his name, look under FLOORS in the classified phone directory...or write Kentile, Inc., 58 2nd Ave., Brooklyn 15, N. Y.

*\*KenRubber should not be installed on concrete in contact with the earth.*

### THESE "K" FACTORS ARE YOUR GUIDE TO THE CHOICE OF RESILIENT TILE FLOORING FOR USE OVER RADIANT HEATED CONCRETE

KENTILE	KENCORK	KENRUBBER
4.5 BTU/sq. ft./hr./°F/in. thick	0.7 BTU/sq. ft./hr./°F/in. thick	4.5 BTU/sq. ft./hr./°F/in. thick
1/8" 36 BTU/sq. ft./hr./°F	3/16" 3.7 BTU/sq. ft./hr./°F	1/8" 36 BTU/sq. ft./hr./°F
3/16" 24 BTU/sq. ft./hr./°F	5/16" 2.2 BTU/sq. ft./hr./°F	3/16" 24 BTU/sq. ft./hr./°F
	1/2" 1.4 BTU/sq. ft./hr./°F	

Based on the "K" factors at top of each table, heat transmission rates through the various thicknesses of KENTILE, KENCORK and KENRUBBER are shown. The °F means that this is the transmission rate when there is 1°F difference between the top and bottom of tile. The heat transmission rate

increases proportionately with an increase in the temperature difference between the top and bottom of the tile; e.g., with 1/8" KENTILE, heat transmission rate would be 180 BTU/sq. ft./hr. if there were 5°F difference between top and bottom of tile.

Write to the nearest office listed below for FREE Folder that summarizes research data prepared to answer your questions about the use of resilient tile flooring over radiant heating.

KENTILE • SPECIAL (Greaseproof) KENTILE • KENRUBBER • KENCORK



# KENTILE INC.

KENTILE, INC., 58 Second Avenue, Brooklyn 15, New York • 350 Fifth Avenue, New York 1, N. Y. • 705 Architects Building, 17th and Sansom Streets, Philadelphia 3, Pennsylvania • 1211 NBC Building, Cleveland 14, Ohio • 225 Moore Street, S.E., Atlanta 2, Georgia • 2020 Walnut Street, Kansas City 8, Missouri • 1440 11th Street, Denver 4, Colorado • 4532 South Kolin Avenue, Chicago 32, Illinois • 1113 Vine Street, Houston 1, Texas • 4501 Santa Fe Avenue, Los Angeles 58, California • 95 Market St., Oakland 4, Calif. • 452 Statler Building, Boston 16, Mass.

When you need compact kitchens  
here are the kitchens you need!



Series 48 Standard

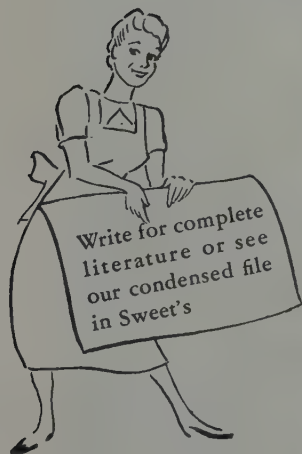


Series 60 Recess



Series 69 Recess

# DWYER KITCHENS



In one  
streamlined  
unit

Genuine  
porcelain

Recess or  
standard  
models.  
4 sizes.

Gas or electric range of approved design. Electric refrigerator with push-button door and compartment for ice cubes and frozen food. Deep bowl sink-and-worktop in one piece; not a crack or crevice for dirt or grease.

Welded steel construction. All fronts and worktop of genuine vitreous porcelain. Permanently beautiful; never require repainting. Wash clean with soap and water.

39 to 72 inches wide. On recess models the 5-inch high backrail of sink-and-worktop continues around each end; eliminates cracks between working surface and adjacent walls.

**DWYER PRODUCTS CORPORATION • Dept. HH-6, Michigan City, Indiana**

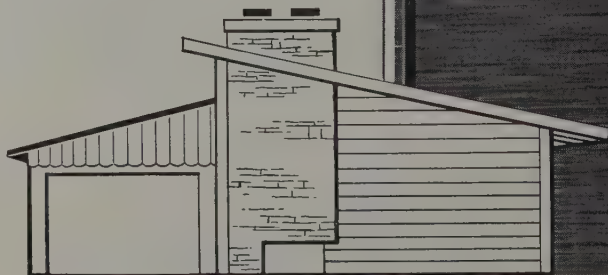
*Specialists in compact porcelain kitchens for over a quarter century.*





**MORE YEARS OF COMFORT WITH BALSAM-WOOL**

**BECAUSE COMFORT IS BUILT IN**



Balsam-Wool® is designed to stay efficient throughout the lifetime of a house. That is why it is sealed in a wind-proofed covering... why it has an efficient, integral vapor barrier ... and why its application is positive and fool-proof. For complete illustrated facts, send for free A. I. A. A. folder of application data sheets. Wood Conversion Company, Dept. 147-62, First National Bank Building, St. Paul 1, Minnesota

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-wool**

Sealed Insulation —  
A Product of Weyerhaeuser

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*for any style home!*

Beautiful Bee Gee Modern Wood Windows...styles for every type home...prices for every budget. Bee Gee Windows are complete units consisting of frame, pre-fit glazed sash with glass embedded in putty, copper screen and all hardware installed at the factory...ready to set in the wall.

Picture windows available with Thermopane or Twindow. Prompt delivery assured on all sizes.



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**Akron 1, Ohio**

*Write now! Get the complete, beautifully illustrated Bee Gee Window Catalog.*

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Akron 1, Ohio

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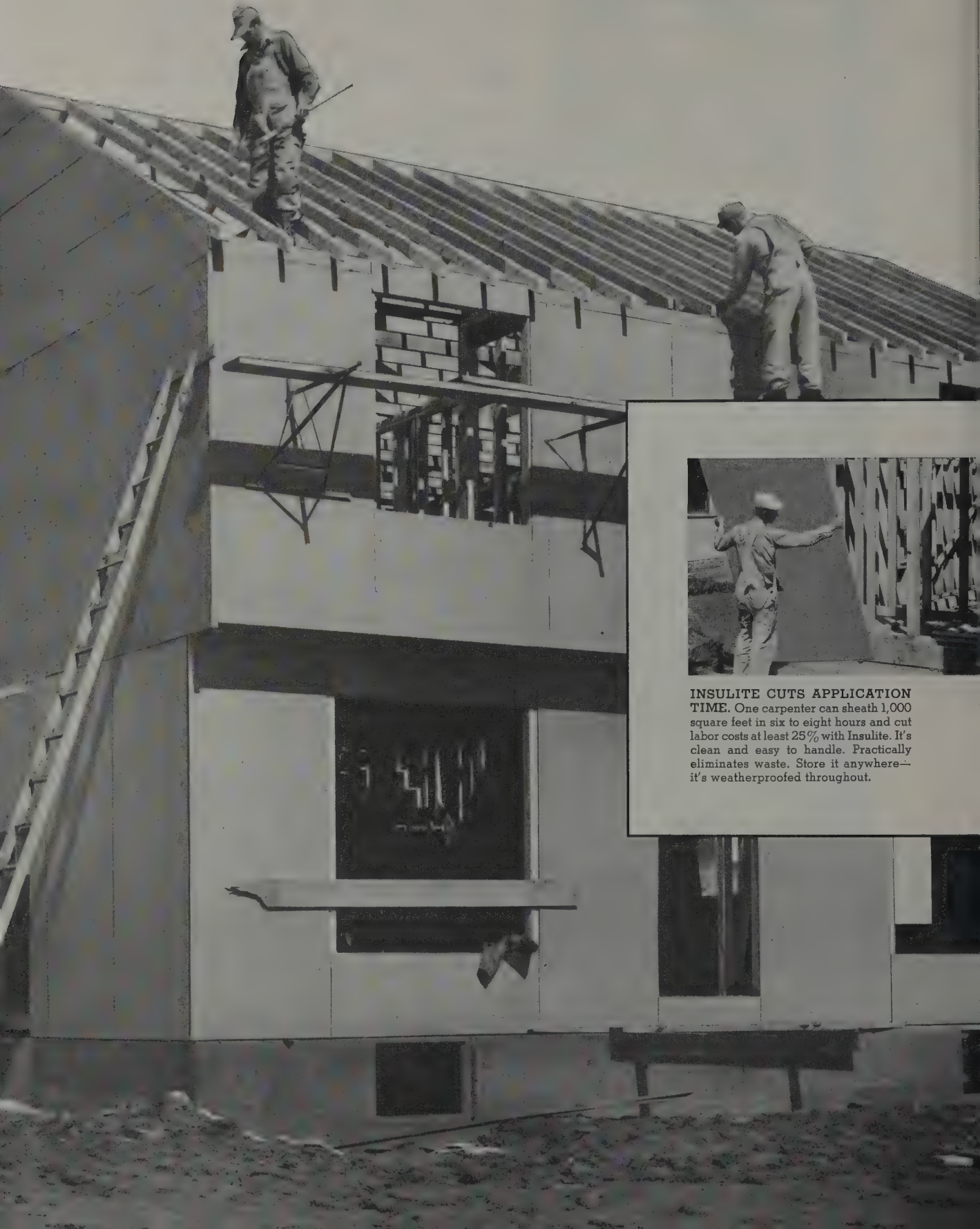
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# Insulite sheathing



**INSULITE CUTS APPLICATION TIME.** One carpenter can sheath 1,000 square feet in six to eight hours and cut labor costs at least 25% with Insulite. It's clean and easy to handle. Practically eliminates waste. Store it anywhere—it's weatherproofed throughout.

# makes this home a better buy!



N. W. Dible of Kansas City, builder of more than 4,000 homes, tells how Insulite helps him sell quality homes at down-to-earth prices!

"I figure that Insulite sheathing helps me give folks more house for their money in two ways.

"First, Insulite cuts building costs enough to help pay for extra features. For instance, the money Insulite saves me on labor and material goes toward paying for bigger rooms or an extra half-bath.

"Second, Insulite helps me build a better home because it has extra insulation value and outstanding structural strength.

"Features like these are important when it comes to building quality homes . . . and a sound reputation."

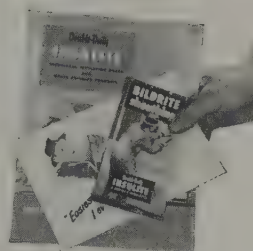


**EXTRA INSULATION VALUE.** The Insulite Bildrite Sheathing used on this attractive N. W. Dible home has insulation value equal to 1¾" of lumber, 11" of common brick, 20" of face brick or 27" of concrete. Insulite helps cut fuel bills, makes homes more comfortable.



**ELIMINATES CORNER-BRACING.** 4-foot Insulite Bildrite *without* corner-bracing has more than twice the bracing strength of horizontal wood sheathing. Bildrite Sheathing's tremendous bracing strength is actually greater than diagonal wood sheathing.

**FREE KIT FOR BUILDERS.** Contents include Insulite's Cost-Comparison Folder with which you can easily figure your actual savings with Insulite. Other material describes how Insulite helps you build better homes in less time . . . for less money! Send for your free kit today. Write Insulite, Minneapolis 2, Minnesota.



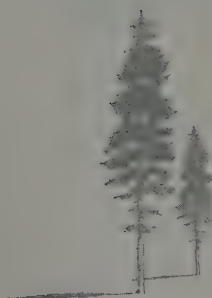
**INSULITE DIVISION.**  
Minnesota and Ontario Paper Company, Minneapolis 2, Minn.

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# INSULITE

INSULITE AND BILDRITE ARE REG. T.M., U.S. PAT. OFF.

MADE OF HARDY NORTHERN WOOD





# Socko!

is the word for

**Tracy** **KITCHEN  
SALES  
APPEAL**



When houses are to **SELL FAST!**—when apartments are to **RENT FAST!** and to the most desirable buyers and tenants!—and with low selling and leasing costs! **TRACY** Stainless Steel Kitchens are knocking out the home runs!

The most fabulous, exciting, and super-modern developments are **TRACY** equipped. The new Levittown, Pennsylvania, marks the 5th consecutive year **EXCLUSIVELY TRACY!**—for Levitt & Sons, Inc., projects.

The West Coast projects of Metropolitan Life, Park Merced and Park La Brea, have **TRACY** Kitchens.

Pittsburgh, Washington, Philadelphia, Newark, Cleveland, Sacramento—all across the country **TRACY** Kitchens help **SELL** and **RENT**, and **PLEASE** their users!



**THE COUNTRY CLUBBER** Tracy kitchen is a marvel of convenience and beauty, and exerts a powerful attraction for every visiting observer. It is axiomatic in the building industry that the kitchen is a major factor in selling houses. Levitt has demonstrated this in tens of thousands of instances.

*Action* **Tracy** is the word for **KITCHENS**

Retail dealers, too, and major stores, are getting action on **TRACY** Kitchens—sold to individual home builders and for remodeling, and improvement projects. There is something so glamorous—thrilling—about the lustrous sheen of this life-time surface, more and more women are becoming Stainless Steel minded. The trend is accelerating. Requests for catalogs, specifications and details get prompt action.

HIGH  
SKY QUALITY



DOWN  
TO EARTH  
PRICES

**Tracy** **KITCHENS**



**LEVITTOWNER**, the moderate priced design at Levittown, Pa., likewise boasts an all-steel Tracy kitchen with stainless steel sink. This is consistent with the Levitt policy to provide nothing but the best of everything.

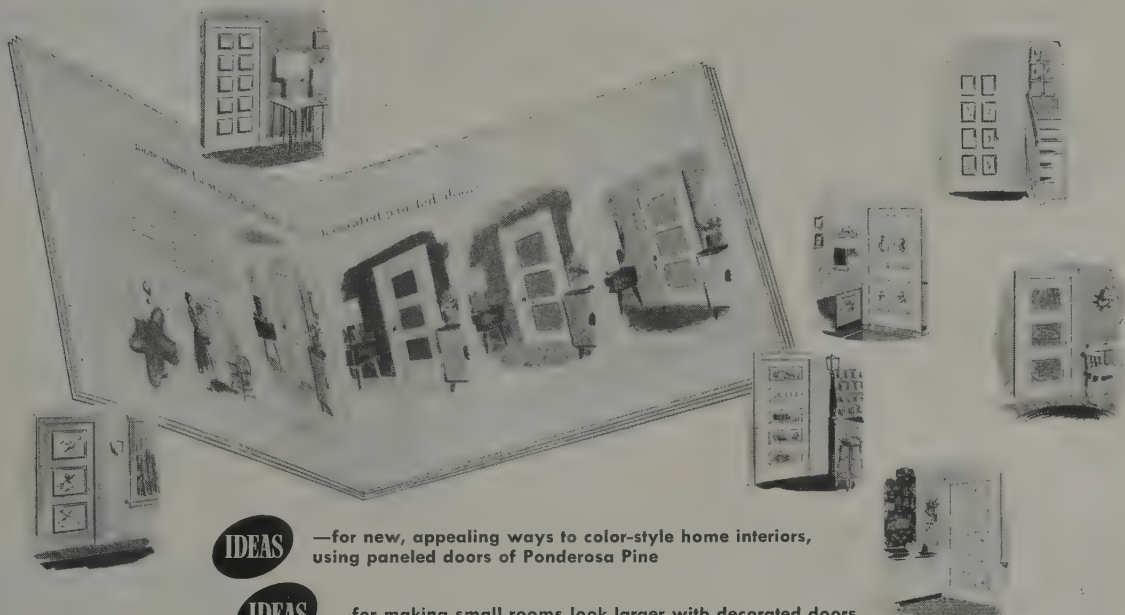
**TRACY MANUFACTURING COMPANY**  
DIVISION OF EDGEWATER STEEL CO., PITTSBURGH 33, PA.

new

**IDEAS**

for the homes you plan

**... doors that decorate!**



**IDEAS**

—for new, appealing ways to color-style home interiors, using paneled doors of Ponderosa Pine

**IDEAS**

—for making small rooms look larger with decorated doors

**IDEAS**

—for creating new interest and personality in individual rooms

**IDEAS**

—for using color to make home exteriors more inviting

**IDEAS**

—new ways to use Dutch, mirror and louver doors—and many more!

There's something *new* in color styling today—a way of making homes more attractive, more inviting to prospective owners. You do it with decorated doors of Ponderosa Pine—paneled doors that bring new and exciting interest to modern, ranch type or traditional homes. For leading decorators—home magazine editors—and color stylists have discovered almost unlimited possibilities in these satin-smooth paneled doors for expressing the modern trend toward the use of more color.

The whole story of this new trend is told in a full-color, profusely illustrated idea book soon to come off the press.

Ordinarily, we would not offer this book to builders and architects, because it was prepared primarily for consumers. However, its subject is so important—the ideas it contains so new and vital—that we think you should have a copy. Reserve yours now—mail the coupon!

**Here's your reservation  
for this new booklet!**

Ponderosa Pine Woodwork  
Dept. VHH-6, 38 South Dearborn St.  
Chicago, Illinois

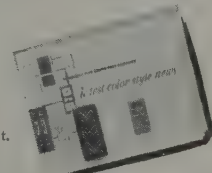
Gentlemen:

Please reserve a copy of your new book, "Latest Color Style News" for me—and send it to me without cost or obligation.

Name.....

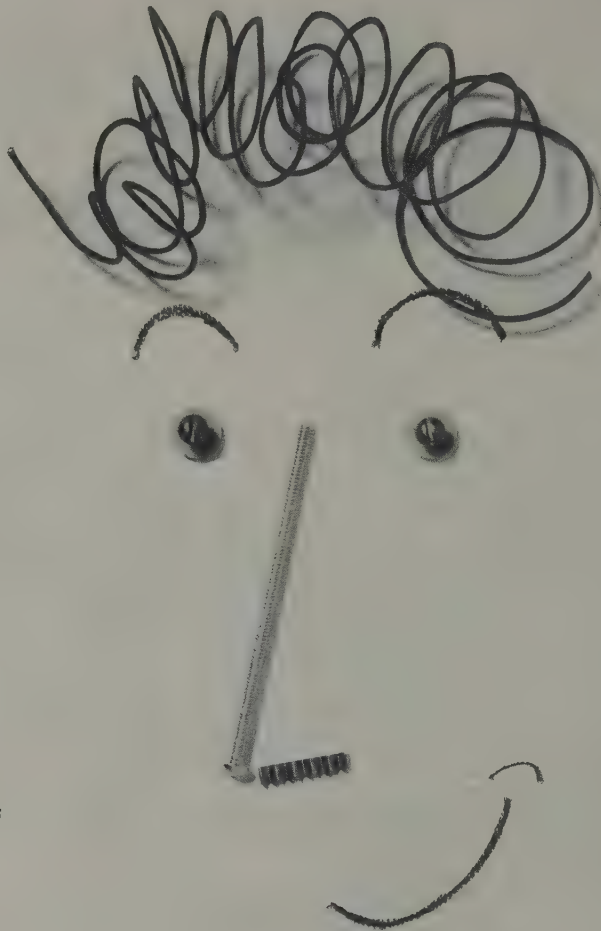
Address.....

City.....Zone.....State.....



*Ponderosa Pine*  
**WOODWORK**





*Catch a man at the dream-stage and he's yours*

His dream house is complete. He's ready to talk business.

Speak to him through House & Garden. There are thousands of him available to you through a one-magazine message.

House & Garden readers build...not just dreams, but floors and roofs and tiled baths and extra bedrooms and fireplaces and garages. Even patios and swimming pools. Even second homes. Their dreams are big and so are their budgets. This makes their power big—their power to specify your product.

You catch a man at the dream-stage not with magic, but with your name in House & Garden.

*medium of*

# House & Garden

*No dreams, these, but concrete facts:* Average yearly circulation (1951): 383,236

H & G survey (1951):

55% of subscribers have incomes of \$10,000 and over    39%—incomes of \$15,000 and over    20%—incomes of \$25,000 and over







Illustrated at left is the popular Westwood  
... 1084 square feet, three bedroom, one-  
floor plan ... an ideal family-sized home.

**Peaseway**  
*homes*  
REG. U. S. PAT. OFF.  
... Best in better living.

## DIVERSIFICATION SPELLS SUCCESS IN THE HOME BUILDING FIELD

More and more builders are finding that the diversity of the Peaseway line of homes pays off for them in consistent sales and profits! For there is a Peaseway home to suit every buyer—low-cost or luxury; traditional, ranch style, or contemporary design—8 basic floor plans with exterior variations practically unlimited. That means the Peaseway Franchise-Builder competes in *all* markets ... sells to *all* prospects.

The Pease Line ranges from a traditional two bedroom home of 691 square feet to the contemporary design "Archwood" of 1410 square feet with 4 bedrooms and 2 baths. The basic designs of all Peaseway homes lend themselves to an unlimited number of exterior variations, insuring pleasing individuality for every buyer.

Large or small, all Peaseway homes offer the utmost in quality, durability, livability, and salability! It pays to be a Peaseway Franchise-Builder—write today for full information.



PRICES RANGE FROM \$7700  
FHA ACCEPTED

WRITE TO:  
**PEASE WOODWORK COMPANY**  
ROOM 633  
CINCINNATI 23, OHIO

"In business in Cincinnati since 1893"



give fine buildings beautiful interiors that never grow old with

# VARLAR

Stainproof Wall Covering

## today's truly functional decor

Varlar is today's most amazing achievement in functional decorating . . . decorating that actually defies the challenge of TIME, USE and ABUSE.

**VARLAR will not stain!** Soap and water removes smoke, soot, grease, oil; takes off without a trace those old enemies of good decorating . . . such stubborn stains as hair oil, lipstick, crayon, indelible pencil, ink, Mercurchrome and countless more.

**VARLAR beauty is practically imperishable . . .** for Varlar can be washed up to 25,000 times . . . and still looks new.

**VARLAR is versatile decorating.** More than 180 styles in today's fresh new designs and colors give unlimited scope in smart sophisticated, high-fashion decorator effects.

**VARLAR is practical decorating.** Goes on like wallpaper, swiftly, easily, inexpensively.

**And VARLAR leads the field in decorating economy.** For Varlar cuts care cost to the bone, redecorating expense to zero, for years to come. A Varlar job has yet to be replaced because it WORE OUT or ceased to be clean, fresh, beautiful on the wall.

**TEST VARLAR YOURSELF.** SEE for yourself that Varlar gives more in functional decorating . . . as it does in beauty and quality . . . than any other product in today's market.

Send today for Free Demonstration TESTING SAMPLES

VARLAR, Dept. HH62,  
Merchandise Mart, Chicago 54, Illinois

Please send FREE TESTING SAMPLE and full information on VARLAR Stainproof Wall Covering. I am particularly interested in VARLAR for

- |  |                                    |                                      |
|--|------------------------------------|--------------------------------------|
| <input type="checkbox"/> Homes               | <input type="checkbox"/> Hotels    | <input type="checkbox"/> Clubs       |
| <input type="checkbox"/> Theatres            | <input type="checkbox"/> Hospitals | <input type="checkbox"/> Restaurants |
| <input type="checkbox"/> Office Buildings    | <input type="checkbox"/> Schools   | <input type="checkbox"/> Stores      |
| <input type="checkbox"/> Apartment Buildings |                                    |                                      |

Name

Address

City  Zone  State

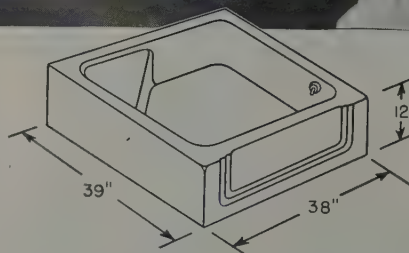
**VARLAR**  
Stainproof Wall Covering  
VARLAR Division of  
United Wallpaper, Inc.



# To help you pack a lot of bathing ...here's the new



**THE NEW RESTAL** simplifies bathroom planning. It's an ideal way to add a complete second bathroom in a limited space installation. Featured with the Restal in this compact bathroom are a Ledge-wood lavatory and a Cadet water closet. All three fixtures are sturdily constructed, smartly styled . . . and budget priced.



## **LITTLE IN SIZE, BIG IN CONVENIENCE.**

The 12" high Restal fits a finished compartment approximately 36" x 37", yet affords complete bathing facilities. It has all the advantages of sturdy construction, being made of rigid cast iron and smoothly coated with regular or acid-resisting enamel

that's actually fused to the iron. Available in white or five popular colors, the Restal comes in recess model with left or right hand outlet. Streamlined fittings are finished in non-tarnishing Chromard.

# convenience into a limited space

## Restal receptor bath

**T**HE new Restal receptor bath provides complete bathing convenience in a shower stall space. And its cost is comparable with that of a properly-installed, conventional shower stall.

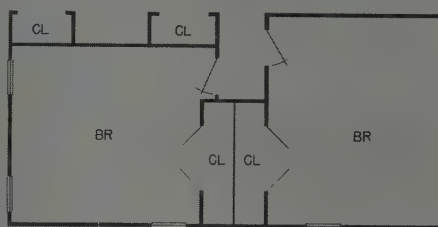
Doubling as both a shower receptor and a bath, the Restal permits you to add an extra *complete* bathroom in small space in the homes you plan. And when it comes to modernizing, you can turn an unused closet, alcove, or sewing room into a fully equipped bathroom with the help of this space-saver. The Restal is ideal for use in small bathrooms of apartments, hotels, and motels, too.

Designed for utmost convenience and safety, the Restal is so low that even elderly people can enter and leave it with safety. Its corner seat facilitates foot and sponge bathing. And the Restal is particularly convenient when bathing children.

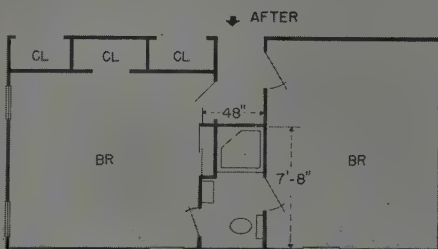
When you are faced with a small-space installation, remember the Restal. It may help you add the extra bathroom that means extra sales appeal. And it's sure to afford an added measure of bathroom convenience for your clients. For complete information about the Restal, contact the American-Standard sales office serving you or write for literature — Form No. 227. **American Radiator & Standard Sanitary Corporation**, Dept. HH-62, P. O. Box 1226, Pittsburgh 30, Pa.



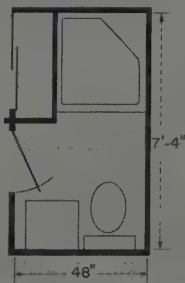
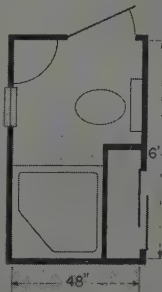
### Actual home plans show how to add an extra bathroom with the RESTAL



BEFORE



AFTER



## AMERICAN-Standard

### BATHROOMS



*Serving home and industry*

AMERICAN-STANDARD • AMERICAN BLOWER • ACME CABINETS • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILERS • ROSS HEATER • TONAWANDA IRON



## memo from a leading apartment builder...



Jack Match, President of  
Harthel Construction Corp.

"**KELVINATOR**  
helps sell  
projects before  
building begins"

"**Nowadays** we have to sell 90% of a new cooperative apartment building before ground is broken," says Jack Match, one of the most successful builders in the Brooklyn-Long Island area. "People buy sight unseen . . . specifications, sketches, and plans are their only guides. That's where a name like Kelvinator in the specs works for you. People know it . . . have confidence in it. Many have been Kelvinator owners, and are very familiar with Kelvinator trouble-free service and dependability."

"I know Kelvinator helped sell out our new Harry Silver Project when it was still in its blueprints. When this project is finished sometime this summer, 288 families will move into three modern, six-story buildings . . . and each will have a new Kelvinator. I know they'll like its many up-to-the-minute conveniences and good looks. And my many years' experience with this same refrigerator has proved to me that Kelvinator upkeep amounts to practically nothing."

Make Kelvinator one of the big selling features of *your* projects. For detailed information, write Dept. AF-6, Kelvinator, Division of Nash-Kelvinator Corporation, Detroit 32, Michigan.



288 COOPERATIVE APARTMENTS

Harry Silver Apartments, Brooklyn, New York • Architect: Morris Rothstein & Sons

**THERE IS A BETTER REFRIGERATOR FOR BUILDERS...**

IT'S **Kelvinator**

Division of  
Nash-Kelvinator Corporation,  
Detroit 32, Michigan

**REFRIGERATORS, RANGES, HOME FREEZERS, WATER HEATERS, DEHUMIDIFIERS . . . Electric, of course!**



# There's No Limit on Beauty

**in a durable VITACHROME FLOOR!**



In both residential and commercial interiors, count on Vitachrome† Tile to always give you beauty plus service.

It offers you a choice of *especially light, bright* colors that give everybody a lift! Colors that won't fade, wear out or show age because they go all the way through from surface to surface.

Although Vitachrome can be used wherever resilient flooring is desired, it is particularly suited to food-serving areas. You'll find that it resists oils and fats, acids and alkalis that bite into ordinary floors when food is spilled.

Vitachrome is a *cinch* to clean. Just sweep its smooth surface to remove loose dirt. Wash periodically, water-wax occasionally.

Despite the hustle and bustle of everyday living, Vitachrome floors show no signs of wear.

And yet how sparkingly alive they remain for entertaining . . . for parties. Their gay, smooth surfaces make even old-timers eager to trip the light fantastic again.

Oh yes, the low cost of Vitachrome! *That*, you'll like!

Get all the details about this *light, bright* flooring material from your Tile-Tex\* Contractor. You'll find his name listed in the classified pages of your phone book . . . Vitachrome is one of *several* very attractive and serviceable *extra* floor coverings that are made by Tile-Tex.

Write today for your copy of colorful, free catalog V-1.

## Tile-Tex

RESILIENT

**FLOORS AND WALLS**

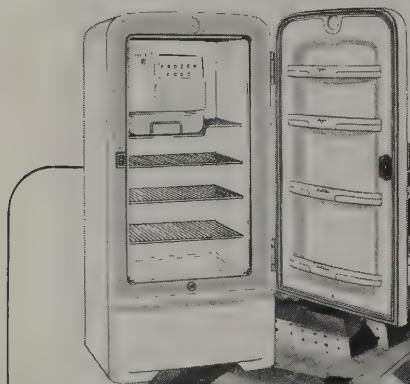
THE TILE-TEX DIVISION, *The Flintkote Company*, 1234 McKinley Street, Chicago Heights, Illinois.

The Flintkote Company of Canada, Ltd., 30th Street, Long Branch, Toronto, Canada.

\*Registered Trademark, The Flintkote Company  
†Trademark



Why America's largest FHA co-op is  
**EQUIPPED EXCLUSIVELY WITH**  
**CROSLEY**  
**SHELVADOR®**  
**REFRIGERATORS!**



Aerial view of  
 Clearview Gardens in the  
 Whitestone area of Queens,  
 Long Island, New York.



We asked Arnold Praver, President of Praver & Sons, why he has selected Crosley Shelvador Refrigerators for Clearview Gardens, the largest FHA co-operative apartments in the United States. We think his answer gives a clear indication of why so many architects and builders today are specifying Crosley products.

"...Shelvador Refrigerators suited my specifications to a 'T'—to provide the utmost in compactness, beauty, economy, and dependability. Best of all, Shelvador Refrigerators have proved to be an important selling point when talking with prospective tenants."

*Arnold Praver*, PRESIDENT  
 LITTLE BAY CONSTRUCTION COMPANY  
 and PRAVER & SONS

● The full line of Crosley top-quality products is designed to help you *sell* your homes and apartments. Crosley gives you the best new convenience features... the best new installation features. Crosley products are precision-engineered—to satisfy the man of the family—and beautifully styled—to catch the eye of housewives. Once you *see* Crosley products... once you *compare* Crosley products... you'll never be satisfied with anything less than Crosley quality.

FOR FURTHER INFORMATION, write us for the name of  
 your nearest Crosley Distributor:

**CROSLEY**

DIVISION



1329 ARLINGTON STREET,  
 CINCINNATI 25, OHIO



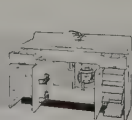
**Shelvador®  
 Refrigerators**



**Shelvador®  
 Freezers**



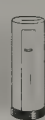
**Electric  
 Ranges**



**Sinks and Food  
 Waste Disposers**



**Steel  
 Kitchen Cabinets**



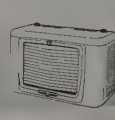
**Electric  
 Water Heaters**



**Radio  
 Receivers**



**Television  
 Receivers**



**Room  
 Air Conditioners**

**CROSLEY... Better Products for Happier Living**



25"  
32

## of Solid Beauty

■ Here's beauty that's not just "skin deep." Bruce Blocks are made of solid hardwood strips, 25/32" thick. Even after many years of hardest wear, this floor can be refinished to look just like new. Its beauty never wears off, its natural colors never fade. And the smart, functional design of a Bruce Block Floor will match even the most modern interior.

Bruce Blocks are ideal for all types of construction . . . can be laid in mastic over concrete slab or blind-nailed over wood subfloor. They are available unfinished or finished at the factory. To save time and money and to give owners a superior finish, specify *Prefinished* Bruce Blocks . . . ready to use as soon as laid. See our catalog in Sweet's File. Write us for booklet with room photos in color.

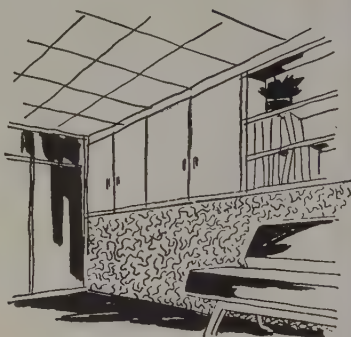


## **Bruce Block** *Hardwood Floors*

PRODUCT OF E. L. BRUCE CO., MEMPHIS 1, TENN.  
*World's largest maker of  
hardwood floors*



**special effects with special surfaces!**



# MASONITE

## LEATHERWOOD

## TEMPRTILE

All the rich beauty and texture of true Spanish-grain leather—at a fraction of the cost! There's no end to the places where Leatherwood can be used with striking effect. No end to the handsome solid colors or tone-on-tone colors it accepts and holds permanently. No wonder more and more builders and owners use this all-wood hardboard panel.

*Here are some of the more popular applications:*

- Floor-to-ceiling walls
- Wainscots, dados
- Flush doors
- Cabinet doors
- Valances, soffits
- Decorative trim
- Store displays
- Store counters, ledges, partitions
- and many more!

Extremes in temperature and humidity don't bother eye-pleasing, easy-to-clean Temprtle.® Smooth, clean score-lines in 4" squares create a smart-looking pattern that resembles ceramic tile. Finishes beautifully. Hint: A striping brush or tool can put a neat, contrasting color in the score-lines.

*Here's where this all-wood hardboard panel works wonders:*

- Kitchens
- Bathrooms
- Laundries
- Recreation rooms
- Laboratories
- Meat markets
- Rest rooms
- Hospital service rooms
- and many more!

**Remember!** Both these *special-surface* Presdwood® hardboards are tempered for extra strength, durability and resistance to abrasion. Both work well in new construction or remodeling (over solid backing). Both are cut and fit with ordinary tools. Both are powerful aids in pleasing more customers.

*better hardboards for better building*



**MASONITE® CORPORATION**

DEPT. AF-6, BOX 777, CHICAGO 90, ILL.

"Masonite" signifies that Masonite Corporation is the source of the product



Cost-wise architects specify

# BRIGGS *Beautyware*

... because it's free from trouble!



DURING THE A.I.A. CONVENTION, JUNE 24-27 —  
BE SURE TO VISIT THE BRIGGS BEAUTYWARE  
INTERNATIONAL SHOWROOM, 101 PARK AVE., NEW YORK



These days, more than ever, the practical architect considers the cost. That's why so many of the leading members of the profession are remembering Briggs Beautyware with increasing frequency when making specifications. The name Briggs Beautyware stands for outstanding quality in plumbing fixtures at a reasonable price. Furthermore, Briggs fixtures are economical to install—because they're trouble-free! All unneces-

sary dead weight has been eliminated—they're easier to handle. Exact dimensions make them easier to install. The tiling-in flange prevents leaks—cuts costly, time-consuming repairs after installation. Special under-tub framework assures permanent level installation independent of wall support. Home owners really like its beauty, durability and economy! For so many reasons, you *can't go wrong* specifying Briggs Beautyware!

BRIGGS MANUFACTURING COMPANY • 3001 MILLER AVENUE • DETROIT 11, MICHIGAN

© 1952

## EASIER TUB INSTALLATION



There is no need to cut and fit adjoining wall tile when installing a Briggs Beautyware bathtub. The newly redesigned Briggs tubs have a perfectly vertical edge at the panel ends—simplifying and speeding installation.

## ACID-RESISTANT LUSTER



Briggs makes only one quality — the best. *Every* piece of Briggs Beautyware is thoroughly resistant to medicines, washes, lotions and acids normally found in the home. Fixtures look new longer! Owners are delighted!

## BEAUTIFUL NON-FADING COLORS

The famous Briggs Beautyware decorator colors are widely known through advertisements in leading magazines across the nation. Give your clients Sky Blue, Sea Green, Ivory or Sandstone (shown at top). Prices are only slightly higher than plain white.





## "25,000 People out here on Sunday..."

"G-E Year 'Round Air Conditioning in our \$12,500 homes caused tremendous opening March 23. Other builders showing great interest in this development. Public interest so good it's hard to believe."

Laughlin & Silver, Lewis & Lamberth, Builders, Dallas, Texas

**AMAZING SUCCESS STORIES** like this will be repeated more and more often all over the country. Reason: General Electric has found the way to offer architects and builders summer cooling for the homes they build...at *low cost*. It's the year 'round comfort more and more home buyers will demand.

**NO EXTRA COST TO BUILDERS!** Buyers pay only a few dollars per month extra over the cost of a warm air heating system alone when cost is included in a long-term mortgage. Builders all over the country have proved that homes equipped with G-E Air Conditioning *sell faster!*

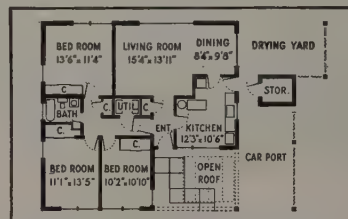
**FLEXIBLE INSTALLATION.** Any size home you build, no matter what the price range, can be equipped with G-E Home Air Conditioning. It can be installed in homes with and without basements with the famous G-E *Air-Wall System*, using for heating the new gas-fired Downflow or Horizontal Furnaces, or standard G-E gas- or oil-fired furnaces.

**BUILDERS! ARCHITECTS!** Your reputation for quality can grow because your customers will have these dependable G-E comfort benefits:

- ★ Summer cooling
- ★ Winter heating
- ★ Dehumidification
- ★ Automatic comfort
- ★ Quiet, clean comfort

*You can put your confidence in—*

**GENERAL  ELECTRIC**



LITERALLY "BUILT AROUND" the G-E Home Air Conditioning System, this is one of the plans of 210 new homes in East Ridge Park, Dallas, Texas. Note the small space required by the compact G-E Furnace and Home Air Conditioner.



**SMALL HOME REVOLUTION** is pointed out in new home by John B. Lowe, President of G-E's wholesaler in Dallas, Texas Distributors, Inc. Architect for homes was George M. Marble; Builders, Lewis & Lamberth and Laughlin & Silver.

**FREE**




General Electric Co.  
Air Conditioning Div.  
Sec. MB-7  
Bloomfield, N. J.

Please send me **FREE** information on G-E Year 'Round Air Conditioning.

NAME .....  
COMPANY .....  
ADDRESS .....  
CITY.....ZONE.....STATE.....

nothing  
like  
THIS,  
← ever before!

SHASTA  SNOW

an  
exclusive  
new

**Carey**

FIRE-CHEX  
SHADOW  
BLEND

Read about it! →





Carey Shasta Snow Shadow Blend Roof Design  
Copyright 1982 The Philip Carey Mfg. Co.

ONLY CAREY GIVES YOU

# SHASTA SNOW

the most beautiful color  
ever created for roofing

soft pastels of  
cool grays  
and greens  
frosted with  
snow-bright white



.. and it's an exclusive Fire-Chex Shadow Blend!

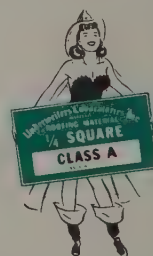
Now, for the first time in roofing history, you can choose roofing that completely satisfies the design requirements of both Contemporary and Traditional architecture!

And what beautiful, beautiful roofing it is. We've named it Shasta Snow...for it gives any roof the dramatic beauty of sunlight and shadows, dancing on a snow-swept mountain in the golden moments before twilight.

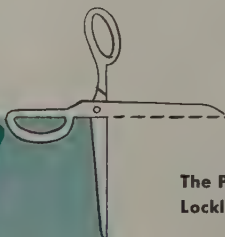
The striking, architecturally-correct color of Shasta Snow comes from specially made ceramic mineral granules, in soft pastels of green and gray, frosted with snow-bright white. These colors have excellent heat reflective characteristics. And the exclusive Carey Shadow Blend process—used to blend the granules and permanently embed them in the thick asbestos-plastic coating—makes possible a roof design with full, pleasing shadow lines and impressive character.

But there's more, far more to this great new Fire-Chex shingle than exciting new color, incomparable design versatility! The roof design it creates is copyrighted as a "work of art"; it is the only type of shingle rated CLASS A without underlayment for fire-protection by Underwriters' Laboratories, Inc. (highest rating possible!) And its extra heavy 325 pounds-per-square construction enables it to resist the onslaughts of wind, hail, sleet, snow and rain for extra years of weather-snug service!

Ask your Carey dealer to show you beautiful, new Shasta Snow and other Carey Fire-Chex Shadow blends and solid colors. Or, mail coupon today for FREE sample of Shasta Snow and informative Fire-Chex literature.



# Carey



THE PHILIP CAREY MFG. COMPANY, LOCKLAND,  
Cincinnati 15, Ohio

IN CANADA: THE PHILIP CAREY CO., LTD.,  
Montreal 3, P. Q.

**From the House of Carey—**

Fire-Guard Rock Wool Batts • Ceramco Siding • Careysote  
Board • Foundation Damp-Proofing • Miami-Carey Bathroom  
Cabinets and Accessories • Kitchen and Attic Ventilating Fans •  
Other famous products for Home, Farm and Industry since 1873

The Philip Carey Mfg. Company  
Lockland, Cincinnati 15, Ohio

Gentlemen:

Please send me a sample of Carey Shasta Snow Shadow Blend  
and informative literature—no obligation on my part!

NAME \_\_\_\_\_

FIRM \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

You can rely on **RHEEM** to influence home sales, too!



**Every RHEEM  
Warm-Air Furnace is  
FIRE-TESTED!**

Burners are lighted. Controls are adjusted. Operation is checked. Everything is done at the factory to see that every Rheem furnace works 100% right.

**Every RHEEM  
Water Heater is  
PRESSURE-PROVED!**

Every Rheem water heater tank is tested at twice the normal water pressure. It has to be perfect before it leaves the factory.



During 1952, the Rheem messages carried in the magazines on the Rheem advertising schedule, including those shown above, will total about 100,000,000. Many readers of these magazines are prospects for new homes. Large-scale, hard-hitting national advertising is building wide public acceptance for products by Rheem... a name that represents an added value that will make your homes easier to sell. And remember, no other manufacturer offers such a wide variety of water heater and warm-air furnace models.

See your Rheem contractor NOW!

Let him explain why Rheem is the best buy for builders.



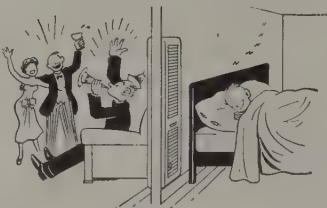
**RHEEM MANUFACTURING COMPANY**  
GENERAL SALES OFFICES,  
570 LEXINGTON AVE., NEW YORK 22, NEW YORK  
*Manufacturing Plants in 22 Cities Around the World*

© 1952 RHEEM MFG. CO.



# The Ideal DUAL WALL HEATER

*Vision-Proofed  
Sound-Proofed*



**NO MERE 2-WAY HEATER  
but TWO HEATERS IN ONE!**

That's the **BRILLIANT FIRE Dual Wall Heater!** It means **2 Burners, 2 complete Heating Sections, 2 Pilots, 2 Safety Valves, 2 sets of Controls.** It means individual **Comfort Control** for each room . . . yet requires but a single gas line and a single flue.

Compact, convenient and a matchless heatmaker . . . vision-proofed and sound-proofed.

## FEATURES

More "protective shielding" for Safety. Better insulated to avoid "overheated walls" and prevent marring wall finish and decorations.

Anchors securely in standard walls. Adjusts to fit exact wall thickness without extra parts or labor.

Gas-tight from burner to flue (100% welded). No odor, no sweating.

High-efficiency combustion, non-clog burner, cast-iron Combustion Chamber head to prevent burnout.

Built-in Draft Diverter and positive-ignition Pilots. Convenient controls and adjustments. Auto-controls optional, easily attached.

Low level Heat Delivery insures Living Zone comfort without stuffiness. Two part Wall Panel . . . lower Service Panel snaps on, convenient for lighting and adjusting.

**A. G. A.  
APPROVED**

## WRITE TODAY!

Send at once for Literature, Prices and A.I.A. Specifications on both SINGLE and DUAL Room Heaters. **DISTRIBUTORS** should investigate the **BRILLIANT FIRE Plan** . . . a few regional territories now open.

**THE OHIO FOUNDRY & MFG. CO., STEUBENVILLE, OHIO**

**Brilliant Fire**  
**Vented — Recessed  
WALL HEATER**

*I save money*



with  
**3M CERAMIC TILE ADHESIVE**

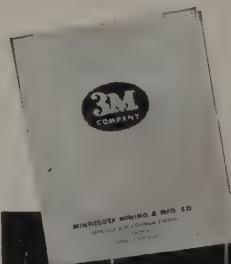
*Here's how I save...*



I can set tile so much faster with 3M Ceramic Tile Adhesive that my job time is greatly reduced. Naturally, this means a lower bid. Because 3M Ceramic Tile Adhesive is ready mixed, my clean-up time is kept to a minimum and I don't have to carry heavy materials from room to room. I can work in any weather because adhesives won't freeze like mortar, and the space is ready for use in 24 hours. The result is that I can do *more jobs faster and easier . . . and about 20% cheaper!* As for quality—well, I get wonderful tile jobs, and a lot of compliments.

*I can set dry-wall, too...*

Many builders and architects build dry-wall these days to conserve critical building materials. *Lightweight* 3M Ceramic Tile Adhesive is ideal for setting tile on plasterboard and similar materials. And for remodeling, as long as existing walls are sound, I can set tile right on them. You bet I'm a 3M Ceramic Tile Adhesive fan. I've got to be. The advantages are terrific!



Write 3M, Dept. 146, 411 Piquette Avenue, Detroit 2, for specification and data sheets on Ceramic Tile Adhesive and other building mastics.

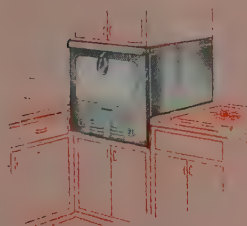
<b>ADHESIVES AND COATINGS DIVISION</b> 411 PIQUETTE AVE., DETROIT 2, MICH.		
<b>MINNESOTA MINING AND MANUFACTURING COMPANY</b> GENERAL SALES OFFICE: ST. PAUL 6, MINN. EXPORT OFFICE: 270 PARK AVE., NEW YORK 17, N.Y. • IN CANADA: LONDON, CANADA		



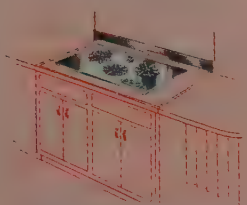
**Chambers Built-Ins  
featured with TRACY  
CABINETS (Pittsburgh, Pa.)**

The following is a partial list of  
cabinet manufacturers producing  
units to fit Chambers Built-Ins.

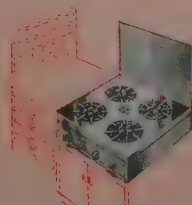
ASKREN, INDIANAPOLIS, IND.  
BEAUTYCRAFT, BALTIMORE, MD.  
BEAUTY QUEEN, MAUMEE, O.  
BELWOOD, ACKERMAN, MISS.  
GENEVA, GENEVA, ILL.  
HARRISON, CHICAGO, ILL.  
I-XL, GOSHEN, IND.  
KITCHEN MAID, ANDREWS, IND.  
LYON, AURORA, ILL.  
COPPEN-NAPPANEE, NAPPANEE, IND.  
PORTA-BILT, NAPPANEE, IND.  
ST. CHARLES, ST. CHARLES, ILL.  
TRACY, PITTSBURGH, PA.



**IN-A-WALL OVEN**



**IN-A-TOP 3 burner unit**



**ON-A-TOP 4 burner unit**

**BUILT-IN COOKING UNITS BY**

**Chambers**  
**COOKS WITH THE GAS TURNED off®**



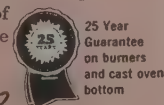
Chambers Built-In Gas Cooking Units are today's answer to more effective use of kitchen space. They provide *waist-hi* cooking and complete flexibility in kitchen layout. Leading kitchen-cabinet companies now offer stock units to fit Chambers Built-ins — simplifying small-kitchen planning. **NO EXPENSIVE OUTSIDE VENTING IS REQUIRED.**

Only Chambers combines design advantages with World Famous Cooking Performance. Only Chambers "In-A-Wall" Oven cooks with the gas turned off, saving food, flavor, time, fuel and labor. **ONLY CHAMBERS FEATURES OVEN CONTROLLED-TEMPERATURE GRILLING.** Chambers offers its oven doors in a choice of stainless steel and 7 decorator colors.

Dealers! Here's a big opportunity to sell complete kitchens at a handsome profit. Powerful national advertising and exclusive features lift the sale of Chambers above competition with a product that women all over the country are demanding.

*Originator and Master Builder of Insulated Ranges since 1910*

Accepted by FHA for Underwriting Loan



**MAIL COUPON FOR MORE INFORMATION**

Chambers Corp., Dept. AFT-652, Shelbyville, Ind.

Gentlemen:

Please send me information on the Chambers Built-Ins.

☐ I am interested in dealer franchise information and name of local distributor.

☐ Send me A.I.A. Specification Sheet.

I am an Architect ☐ Builder-Contractor ☐ Dealer ☐

NAME.....

FIRM NAME.....

ADDRESS.....

CITY.....ZONE.....STATE.....





# WOMEN buy homes...

## Auto-lok

AUTOMATIC LOCKING  
PATENTED

## SELLS homes to women

because **Auto-lok** is the first and  
only window to give women everything  
they've ever wanted in a window

...WITH NONE OF THE DISADVANTAGES  
THEY'VE PUT UP WITH IN THE PAST



New HOMES AREN'T NEW without

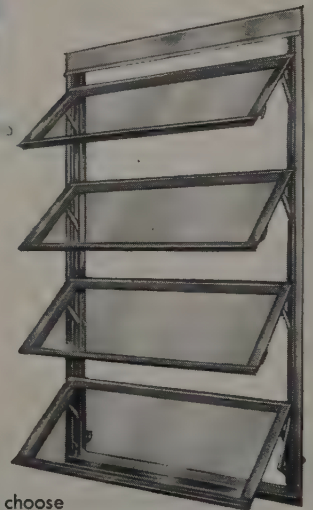
## Auto-lok

AUTOMATIC LOCKING  
PATENTED

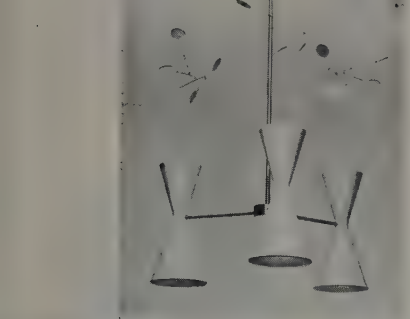


Women know Auto-Lok as the window that "makes its own weather" ... provides luxurious fresh air ventilation even while it's raining ... keeps their homes warmer in winter because it is the *tightest closing window ever made* ... keeps their homes cooler in summer because Auto-Lok opens widest and scoops in every bit of cooling breeze!

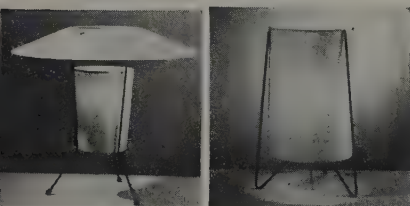
When the competitive chips are down ... windows often make the difference! Why choose a window with *any* disadvantage, with the ready sale of a home at stake? Choose Auto-Lok ... and equip your homes with the first and only window specifically engineered and built to combine the best features of all window types. Choose Auto-Lok ...



### THE WINDOW WOMEN WANT MOST!



Gotham's graceful light cones come with mobiles, ranging from \$23 to \$33. The little sculptures may be mounted separately or suspended from a ceiling fixture. The trio above sells for \$80 (stripped) and the wall bracket at left retails for \$25.



The two tripods made by Middletown shade their light sources with fabric cylinders. A white open disc of aluminum acts as the directional reflector for the \$21 table lamp (above left).

Elasticized louvers of white or yellow overlap to form a slender column. Standing 18" high, this lamp retails at \$15.95.

A bright wing of red or green rubberized fabric perches over the two translucent white shades in this oriental student lamp. Price: \$22.



(Continued on page 174)



# Room-by-room comfort assured!

## WITH NEW Zone Controlled GAS HEATING

**Room-size "Safety-Sealed" units answer individual heating requirements exactly... require no ductwork... chimneys... electricity!**

Shown Above: Model 991-14; 14,000 BTU/HR. 18" x 24" x 4".

**Look at them all!** Compare! Nowhere else will you find the space-saving, cost-cutting advantages that modern "Safety-Sealed" units make possible. Nor the ease of installation, operation or degree of control which enables these units to suit individual heating requirements so exactly.

**Builders and home owners alike cheer this most flexible, most economical system of perimeter heating.** Acclaim its fully automatic, zone-controlled heating comfort. And all with good reason.

**Revolutionary in design,** "Safety-Sealed" units burn gas in a sealed combustion chamber—then vent all combustion products outside after use. (Room air is never used for combustion.) Efficient. Economical. They

permit quick, easy installation in any exterior wall, with no chimneys, no ductwork or electricity required.

**Designed to give steady, warm-as-toast comfort...** to heat cold walls... to stop chilling drafts, "Safety-Sealed" units operate silently, dependably on either natural, manufactured or LP gas. *Have no moving parts to maintain or replace.*

**Consider all these advantages now.** The savings against rising building costs, greatly simplified heating plan, *plus* the desirability of a heating system that completely solves moisture problems of combustion products in tightly insulated small homes. You'll want to specify and recommend "Safety-Sealed" gas heating on every job!

**STEWART *Safety Sealed* WARNER**  
**GAS HOME HEATING**

STEWART-WARNER CORPORATION • South Wind Division  
1514 Drover Street, Indianapolis 7, Indiana

### Get the facts:

Write now for complete free information and specifications on this latest development in modern gas heating. Clip and mail the coupon today.

Approved by American Gas Association



Stewart-Warner Corporation, South Wind Division  
Dept. K-62, 1514 Drover Street, Indianapolis 7, Ind.

Please send me specifications and complete details on "Safety-Sealed" Saf-Aire Gas Heating Units.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

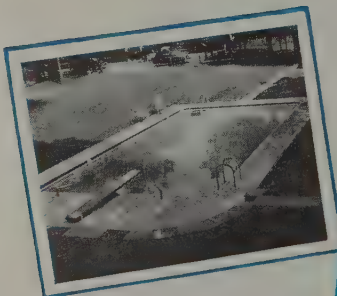




# all-steel swimming pools

by  
**KOVEN**

Architects and builders have discovered that KOVEN All Steel Swimming Pools enhance the desirability of their homes and impress prospective buyers with their good taste. They win praise for economy mindedness too when they explain that the all steel construction of the durable KOVEN Pool assures its remarkably low upkeep and frees it from weaknesses of other type pools. Of course, the fact that clubs, hotels, municipalities and institutions prefer KOVEN Steel Pools, adds to the prestige of architects and builders who specify them.



KOVEN craftsmen supply all engineering and drafting detail on KOVEN Pools which are built of heavy steel plate, shipped knocked down, then field welded and erected with suitable structural reinforcing and bracing. Ladder at diving area and stairway at shallow end plus lighting, filtration and chlorination are furnished by KOVEN.

- Low initial cost
- Lower upkeep
- The only leak-proof type built



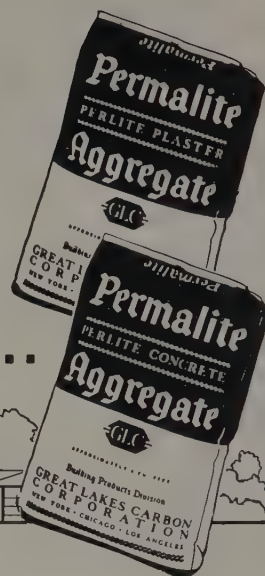
any size, style  
or shape can  
be ordered.

Free information sent on request.  
Write or call KOVEN now — no  
obligation.

**KOVEN STEEL SWIMMING POOLS, INC.**  
A DIVISION OF L. O. KOVEN & BRO., INC.  
154 OGDEN AVENUE, JERSEY CITY 7, N. J.

PLANTS: Jersey City, N. J. Dover, N. J.

To help you  
build a  
better home...



**Permalite makes plaster  
4 WAYS BETTER!**

That's right... Permalite aggregate means a better house... extra value for the money. In base coat plaster, it provides: (1) Three times greater insulation than ordinary plaster; (2) Extra fire resistance; (3) More resilience, more crack-resistance; (4) Tons less dead weight for minimum settling and maintenance.

**Permalite makes concrete  
INSULATING!**

In concrete floor slabs, Permalite gives up to 20 times the insulation of ordinary concrete. Minimizing heat loss into ground, it's a superior base for floor radiant heating systems. Adds year 'round comfort, helps eliminate cold floors.

Send in this coupon today for full details. Learn how you can add much to housing quality, little to housing cost with Permalite.



A Building Product of  
Great Lakes  
Carbon Corporation  
and its exclusive  
Permalite Licensees



Great Lakes Carbon Corporation  
Perlite Division, Dept. 23-6  
18 East 48th Street, New York 17, N. Y.

Without obligation ☐ please send complete information on Permalite. ☐ Have representative call.

NAME \_\_\_\_\_  
COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_

**WHEN A SALE  
IS IN THE BALANCE...**

# **CUSTOMERS DON'T WEIGH THE STICKS 'N STONES**



**They Weigh Quality Features They Know**

# ***American Kitchens***

## **SELL HOMES FASTER!**

Customers are not experts in the fine points of building construction... they don't judge your houses in terms of "sticks 'n stones." They judge the value of a house in terms of things they *know*—and they know a good kitchen from a cheap one.

That's why so many builders today are including American Kitchens in their plans. For American Kitchens spell high-quality... easily recognized... and prospects use it as a sort of measuring stick to judge the quality of hidden construction as well.

### **These Features Sell Homes!**

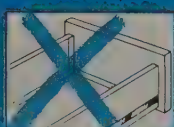
Point out to your customers the famous exclusive American Kitchens selling points shown at right—plus the handsome design that has made it recognized as the most beautiful kitchen in America, the body-contour line that gives plenty of knee and toe room for greatest working comfort. Show how American Kitchens use superior steel for the famed die-formed construction, the finest insulation materials, the sturdiest hinges and drawer slide construction.

### **Pays To Feature American Kitchens**

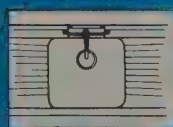
Sales move faster with American Kitchens. They are economical, easy to install. Builders find it pays to feature American Kitchens. Mail coupon today.



**American Kitchens'** one-piece rounded drawers—no seams, easy to clean!



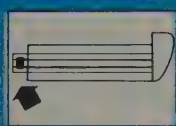
**Other kitchens have** dirt and rust-catching ledged drawers with upstate corners!



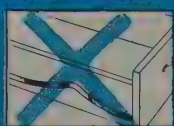
**American Kitchens'** 13% larger sink bowl. But other make sink ledge that cut up important bowl space!



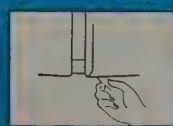
**Other kitchens have** old-fashioned ledges that cut up important bowl space!



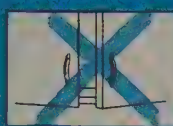
**American Kitchens'** nylon glide drawers pull out noiselessly on the level!



**Other kitchens' metal or soft brass drawer guides** that scratch, bend under strain!



**American Kitchens'** concealed door and drawer pull eliminate dirt-catching handles!



**Other kitchens, with handles of all designs** catch dirt, make clean dirt-catching handles! big difficult!

# ***American KITCHENS***

## **SELL HOMES FASTER**

AMERICAN KITCHENS DIVISION



CONNERSVILLE INDIANA

American Kitchens Division  
AVCO Manufacturing Corp., Dept. MB-6  
Connorsville, Ind.

Please send me full information on special discount to builders and your new Architects' and Builders' File.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

Zone \_\_\_\_\_ State \_\_\_\_\_



# Now!



**ELIMINATION OF WATER COOLING BRINGS HEATING AND AIR CONDITIONING TO LOW COST HOUSING**

**WITH *Fridg-A-Fire***



Installation adds little to monthly F. H. A. payments.

Heats with oil or gas up to 150,000 B. T. U.

Heating and refrigerated cooling — both from a single unit.

Switches from heating to cooling or back in less than 30 seconds.

**Here's Why You Can Now Install Heating And Air Conditioning In Your Mass Housing Project:**

1. No water needed = \$5-\$10 per month cooling costs
2. 39" x 48" area = Floor space saved for more living area
3. Installed in 22 states = wide acceptance by builders and architects

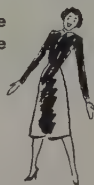


Be the first in your community to have the biggest sales leverage in mass housing. Write or wire today for full details and prices.



**Automatic Firing Corp.**

4417 Oleatha, St. Louis 16, Mo.



Automatic Firing Corp.  
4417 Oleatha Avenue  
St. Louis, Missouri

Please send me complete details on Fridg-A-Fire for low cost housing.

Name \_\_\_\_\_

Address \_\_\_\_\_

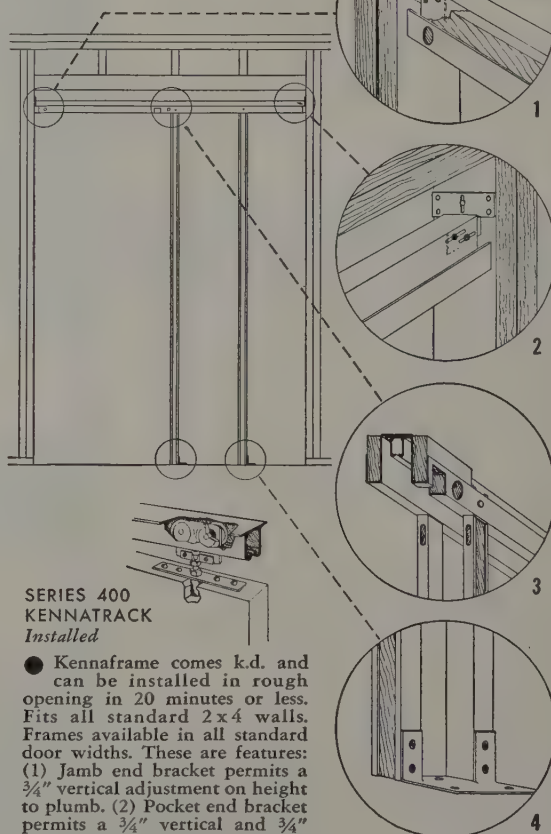
City \_\_\_\_\_ State \_\_\_\_\_

# Warp Proof!

## KENNAFRAME

**SERIES 800 PREFABRICATED METAL PASSAGE DOOR FRAME**

Complete with Series 400 track installed at factory



**SERIES 400 KENNA TRACK Installed**

● Kennaframe comes k.d. and can be installed in rough opening in 20 minutes or less. Fits all standard 2x4 walls. Frames available in all standard door widths. These are features: (1) Jamb end bracket permits a 3/4" vertical adjustment on height to plumb. (2) Pocket end bracket permits a 3/4" vertical and 3/4" horizontal adjustment to plumb and fit opening. (3) All split jambs provide a 1 1/8" adjustment for height to fit uneven concrete or double wood floors. Slot in header provides access to hangers for door adjustment. (4) Wood filler strips allow plaster grounds, trim and stops to be nailed or screwed in usual manner. Base brackets assure proper spacing of split jambs and anchorage to floor.

See your Kennatrack dealer or jobber, or write Dept. B-6

**JAY G. McKENNA, INC.**  
ELKHART, INDIANA

JAY G. McKENNA (Canada) Ltd., 104 Jarvis St., Toronto, Canada

→ Specializing Exclusively in the Manufacture of Sliding Door Hardware

*I'm your  
customer*



...and I want an

**ELECTRIC RANGE**

in my home!

A good house has more than good looks. We're looking for a new home, and I'm looking into the equipment as well as the architecture and interior arrangement. One of my chief interests is the kitchen—my everyday workroom—and one thing I want in it is a modern *Electric Range* that can save me time and work.

"An Electric Range in the kitchen is a potent sales help," says **MR. A. A. CAROZZA**, builder, of Silver Hill, Maryland. "We found that out when we sold 28 homes in one day. Home buyers want electric kitchen equipment as part of the house, covered by a single 'package mortgage.' And they want an *Electric Range* because it's completely automatic, clean and economical in operation. They realize, too, that it means a cool kitchen."



**EQUIP**

YOUR HOUSES WITH

**ELECTRIC RANGES**



The attractive Hillcrest Heights homes are of the semi-detached type, set on spacious plots in a wooded section—yet only 15 minutes from downtown Washington, D. C. The first 28 sold last year from \$14,250 to \$15,950.

This typical kitchen in a Hillcrest Heights home includes as part of the "package mortgage" an electric dishwasher-sink combination with food-waste disposer, spacious electric refrigerator, and the range—of course, it's **ELECTRIC!**

**ELECTRIC RANGE SECTION**

National Electrical Manufacturers Association  
155 East 44th Street, New York 17, N. Y.

ADMIRAL • COOLERATOR • CROSLY • DEEPFREEZE • FRIGIDAIRE • GENERAL ELECTRIC  
GIBSON • HOTPOINT • KELVINATOR • MONARCH • NORGE • PHILCO • WESTINGHOUSE



# WARM DRY FLOORS in BASEMENTLESS HOMES with ZONOLITE® INSULATING CONCRETE



ORDINARY CONCRETE  
ZONOLITE CONCRETE  
MOISTURE BARRIER  
GRAVEL FILL  
GROUND

Homes built with warm, dry Zonolite concrete floors sell or rent faster because: Zonolite has up to 16 times the insulating efficiency of ordinary concrete. It blocks condensation, cuts heat loss into the ground. Zonolite Insulating Concrete is absolutely permanent—lasts the life of the building. It cannot rot, decay or deteriorate.



*(Radiant Heating More Efficient, too!)*

Zonolite, under radiant heating, directs heat upward into room, retards heat loss into the ground. Its low heat capacity does away with "heat lag" and "over ride", gives instant response to thermostatic controls.

Investigate this way to build basementless homes that have better value, added comfort and economy through the years. Mail coupon for free booklet CA-4.



Please send me, without obligation, FREE BOOKLET CA-4 describing Zonolite Insulating floor construction.

ZONOLITE COMPANY, Dept. MBL-62  
135 S. La Salle St., Chicago 3, Ill.

Name.....

Address.....

City.....Zone.....State.....

☐ Architect ☐ Contractor ☐



## NO JUGGLING!

No trouble at all . . . with new labor-saving DURALL tension screens!

**SAVE TIME!** Duralls snap into place inside your window. Two easy clamps grip screen to window frame. All in just 9 seconds!

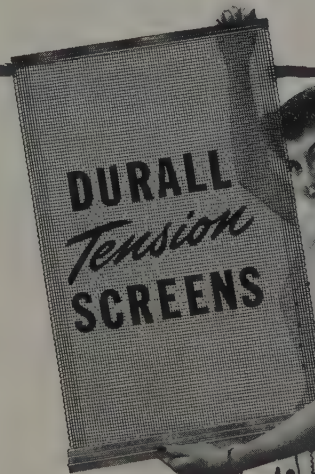
**SAVE SPACE!** To store Duralls unsnap, roll up, slip into handy cartons, store in nearest closet! Duralls weigh just ounces!

**SAVE TROUBLE!** Duralls make window washing a snap. Release two clamps and Durall

hangs loose as a shade! So easy to reach outside.

**SAVE WORK!** Duralls never need painting or weatherproofing. They're rugged and durable. They never rust or stain your house!

**SAVE MONEY!** Duralls do more, cost less, last longer than ordinary, old-fashioned screens. Write for our Catalog AIA-35-P-1.



NEW YORK WIRE CLOTH COMPANY, New Canaan, Conn.

# Johns-Manville *TERRAFLEX*

the vinyl plastic-asbestos floor tile,  
offers advantages never before  
combined in one type of flooring



#### COLORS ARE CLEARER

The vivid colors of Johns-Manville Terraflex Flooring have a clarity and warmth that add beauty to any interior—keep their *first day newness* for a lifetime. The wide range of marbleized colors in harmonious and contrasting shades offers unlimited freedom of design.



#### EASIER TO MAINTAIN

Terraflex is resistant to grease and oil, alkaline moisture and mild acid solutions. It is easy to clean and even caustic soaps which permanently damage other types of resilient floorings will not affect Terraflex—it cannot “wash out.” Many different decorative inserts are available to add interest and individuality to floor design. Knife-fork and teakettle inserts are shown above. Moisture-resistant, Terraflex is ideal for laying over radiant-heated concrete floors in direct contact with the ground.



#### WILL LAST A LIFETIME

Although Terraflex is extremely resilient, it will outwear other types of decorative floor coverings two to one. With its superior flexibility it conforms to uneven surfaces and absorbs normal floor play. It does not crack, curl, become loose, or brittle, or shrink around the edges. It does not become fuzzy or scratch or lose its sheen from constant wear.

FOR THE BEST there is in flooring—look to Johns-Manville Terraflex.

Send for a free brochure showing the full color line of Johns-Manville Terraflex and Asphalt Tile. Write Johns-Manville, Box 290, New York 16, N. Y.



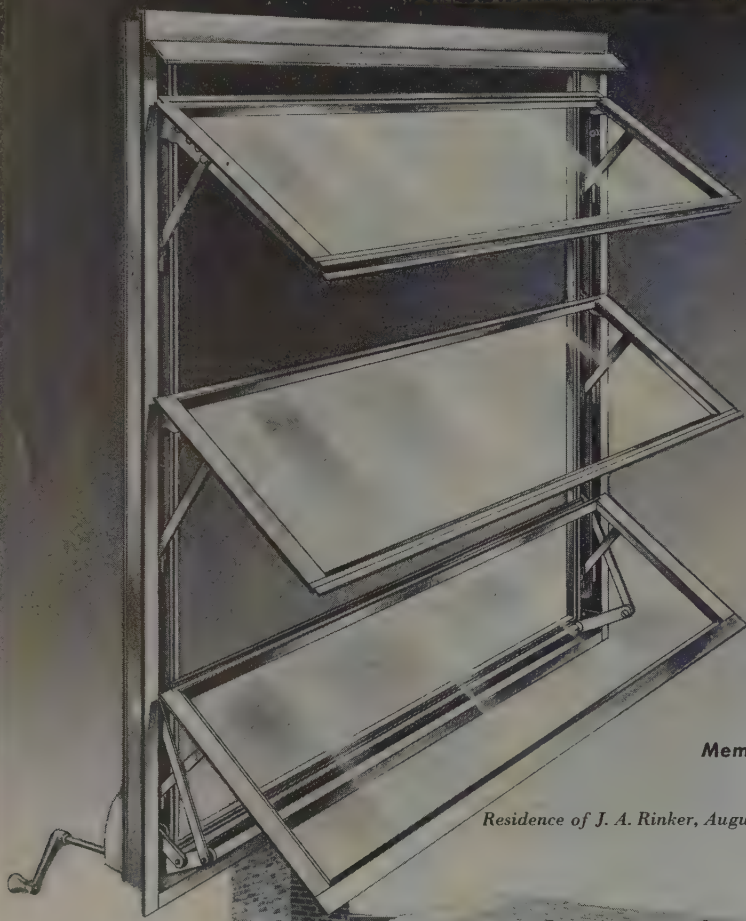
## Johns-Manville

TERRAFLEX AND ASPHALT TILE FLOORING



# *Ventilation +*

## THE ALL-ALUMINUM MIAMI AWNING WINDOW



*Light and free ventilation are accented in contemporary architectural planning.*

*This trend is particularly significant in home design. Materials of building must take on a new look of freedom in design...*

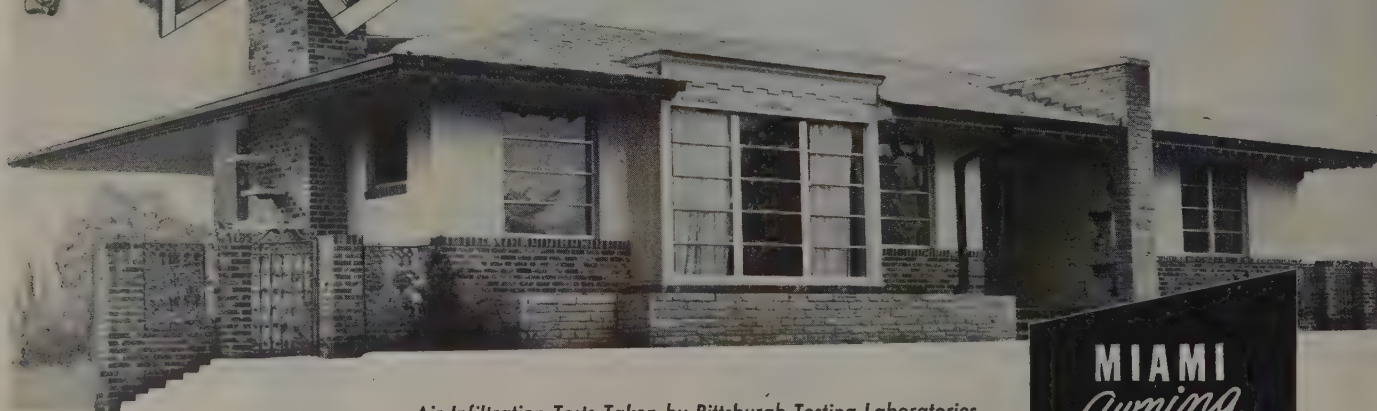
*The All-Aluminum Miami Awning Window is part of this trend.*

- Constructed from extra-heavy aluminum alloy sections (63-ST5).
- Both sides of vent sections are actuated with equal pressure through a patented, concealed torque shaft allowing easy, balanced opening and closing.
- Positive weathertight closing. (Plastic weatherstripping optional.)
- Available for immediate shipment.

For fine installations in schools, hospitals, office buildings and small homes, specify the all-aluminum Miami Awning Window.

Member — Aluminum Window Manufacturers Association

*Residence of J. A. Rinker, Augusta, Ga. — F. Arthur Hazard, Architect*

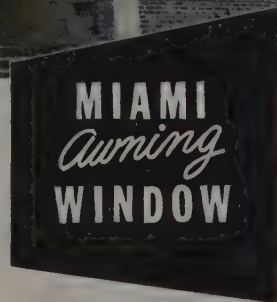


Air Infiltration Tests Taken by Pittsburgh Testing Laboratories

For further information, see Sweet's Architectural  
File <sup>17A</sup><sub>Mi</sub> or — write, wire or phone Miami Window Corporation, Dept. BH-5.

## MIAMI WINDOW CORPORATION

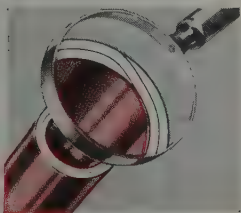
5200 N. W. 37th Avenue, Miami 42, Florida





**Bundyweld** ceiling radiant heating installation in Detroit, Michigan. Bundyweld Tubing is leakproof, has high bursting strength. It's smooth and clean inside and out, transmits heat quickly.

## Give your houses the new competitive edge of Bundyweld ceiling radiant heating



### Key to Low Cost

Bundyweld is the only tubing double-walled from a single strip. It's steel, copper-coated inside and out. It gives finest radiant heating performance, with savings up to 50% on material costs and installation time.

Standard 20' or 24' lengths of Bundyweld are easily formed into coils in shop or on job site. Expanded ends (furnished when specified) are quickly soldered into leakproof union. Joined, lightweight coils are easily mounted onto ceiling, quickly plastered over.

**Put your** houses years ahead with today's fastest-growing, most advanced heating method.

Thousands of home owners living with Bundyweld ceiling radiant heating will hear of nothing else. They're sold on its unique comfort, convenience, economy, freedom from dirt.

Thousands who read Bundy's ads in *Better Homes & Gardens* and *Amer-*

*ican Home* send in coupons for literature, write in for names of builders and architects handling Bundyweld ceiling radiant heating. Many of these people are ready prospects for you.

Take advantage of this ready-made, rapidly expanding market. Move out ahead of your competition. Send coupon for details on Bundyweld ceiling radiant heating and on Bundyweld Tubing.

**Radiant Heating Division**  
**BUNDY TUBING COMPANY**  
Detroit 14, Michigan

**SEND FOR  
FREE LITERATURE!**



Bundyweld  
ceiling radiant heating

Radiant Heating Division, Dept. MB-752  
Bundy Tubing Company, Detroit 14, Michigan

- ☐ Send me free 20-page nontechnical brochure explaining Bundyweld ceiling radiant heating clearly and fully.
- ☐ Send me Bundy technical radiant heating pamphlet.

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_





(Above) Electronic Moduflow home built by Berkey Properties, Inc., at Arlington, Virginia.

(Below) Builder James H. Berkey discusses Electronic Weathercaster with Honeywell representative Jack Long.

## "The Electronic Weathercaster is an exciting feature of my new homes!"

says James H. Berkey, leading Arlington, Va., builder

"When we began building after the war, we looked hard for a control system that would give home owners the superior kind of comfort they had a right to expect in a postwar home.

"Honeywell's new Electronic Moduflow seemed like the best bet to us

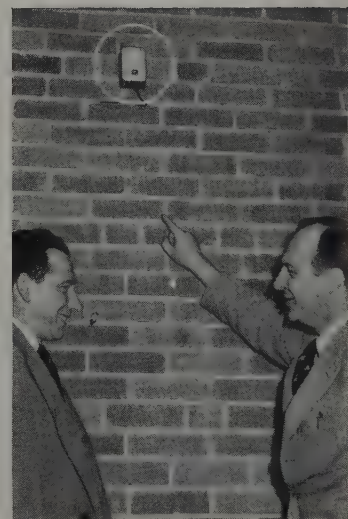
"So we began to install and feature it in our advertising. And we sure got the results we were looking for—greatly improved comfort with temperatures that stayed *even*, no matter how rapidly the weather changed. Plus a great many interested prospects because we advertised it as something special.

"And we got a lot more than that.

"In the Electronic Weathercaster—the outdoor thermostat—we found an exciting feature that has a wealth of prospect-appeal.

"When you point out a thermostat mounted *outside* the house that improves *indoor* comfort, you can't help but arouse a prospect's interest.

"And that's the frame of mind that makes all the features of a house look better to your prospect—which is mighty important because it makes your finished houses easier to sell."



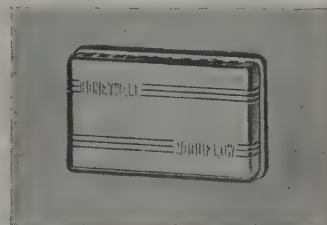
*Another Plus Profit  
Idea from Honeywell*



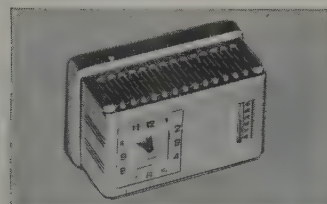
Numbered positions on floor plan indicate location of Electronic Moduflow components illustrated at right.



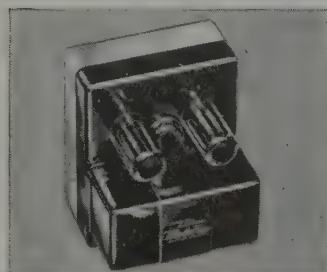
- 1** Electronic Weathercaster detects temperature shifts *outside* the house.



- 2** Averaging Thermostat balances indoor temperature readings.



- 3** Electronic Chronotherm provides automatic night set-back, automatic morning pick-up.



- 4** Electronic Relay Amplifier "interprets" signals from *all three* thermostats.

## Magic of Electronic Moduflow heating control makes your homes easy to sell

In addition to being comfort conscious, every prospect is intrigued when you mention that magic word "electronics."

He knows it means finer, truly modern performance.

So when you show a house that's equipped with Honeywell *Electronic Moduflow*, if your prospect is at all interested, you're closer to a sale.

And it's good to tell your prospect the reasons why Electronic Moduflow will mean he'll be more comfortable—even in the most changeable winter weather.

Simply explain that because the controls *are* electronic, they're 28 times more sensitive. That in the new Honeywell Moduflow system, outdoor and indoor thermostats work together to give comfort that's close to ideal.

Use the magic of *Electronic Moduflow* to make your homes easy to sell.

Call your local Honeywell office—or send coupon for more information.

MINNEAPOLIS  
**Honeywell**

*First in Controls*



MINNEAPOLIS-HONEYWELL REGULATOR CO.

Dept. HH-6-146, Fourth Avenue South, Minneapolis 8, Minnesota

Gentlemen: Please send me more facts on your new Electronic Moduflow system for homes.

Name .....

Firm Name .....

Address .....

City.....Zone.....State.....



Steel Door Frames  
 Flush Steel Doors  
 Underwriters "B"  
 Label Door Frames  
 Underwriters "B"  
 Label Doors  
 Sliding Closet  
 Door Units  
 One-piece welded  
 frame  
 Sliding Closet  
 Door Units  
 Knocked-down  
 frame  
 Single or Double  
 Swing Flush Doors  
 Steel Door Frames  
 Trimmed Openings



See Sweets  
 File 16a-AME  
 for AMWELD  
 Catalog or  
 write us for  
 a copy.

AMWELD interior steel doors, frames and sliding closet door units are specified because of their Low Cost — Pleasing Appearance — Fine Quality — Long Life. Precision manufactured, they will not crack, shrink, warp or burn — no maintenance required.

Doors are baked prime coated at factory, ready for any desired finish or color. They blend with all architecture and true flush design eliminates dirt-catching contours. Available in standard sizes — flush, vision panels, half glass, louvres, UL "B" labels. Frames from 2 3/4" to 6 1/4" for all types of wall construction.




BUILDING PRODUCTS DIVISION

**THE AMERICAN WELDING & MFG. CO.**

330 DIETZ ROAD

WARREN, OHIO

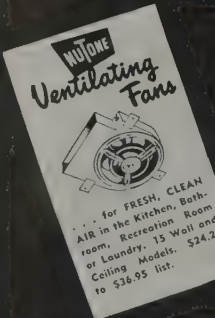
Write   
**AMWELD®**  
*Interior Steel Doors  
 and Frames  
 and Sliding Closet  
 Door Units into  
 your specifications!*

AMWELD steel sliding closet door units save from 6 to 9 square feet of floor space and allow complete access to closet contents. Furnished for 3', 4', 5' and 6' openings.

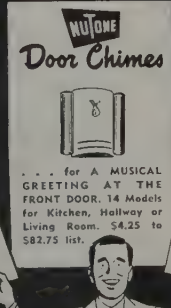


AMWELD steel sliding closet door units are available with one-piece welded or knocked-down frame. Both complete with two by-passing door panels and complete hardware.


**EVEN THE LOWEST  
 PRICED HOUSES....**



**for FRESH, CLEAN AIR** in the Kitchen, Bathroom, Recreation Room or Laundry. 15 Wall and Ceiling Models. \$24.20 to \$38.95 list.



**... for A MUSICAL GREETING AT THE FRONT DOOR.** 14 Models for Kitchen, Hallway or Living Room. \$4.25 to \$82.75 list.



**... for A "TOASTY WARM" BATHROOM.** NuTone Heat-A-Lite is the world's safest heater ... built into the ceiling. 10 Models \$49.75 to \$67.95 list.

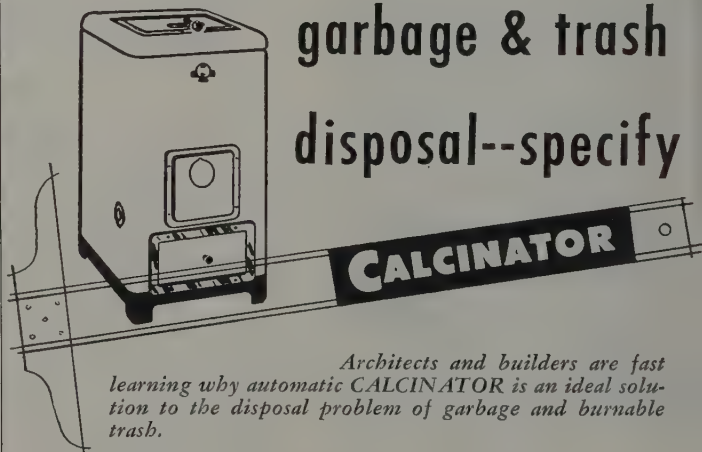
**... CAN AFFORD THESE THREE**

**NU-TONE PRODUCTS!**

**FREE**

Write for free literature, specifications, diagrams and data for installing NuTone Ventilating Fans, Door Chimes, and Electric Ceiling Heaters. NUTONE, INC., Dept. HH-6, Cincinnati 27, Ohio.

**for automatic  
 garbage & trash  
 disposal--specify**



*Architects and builders are fast learning why automatic CALCINATOR is an ideal solution to the disposal problem of garbage and burnable trash.*

CALCINATOR disposes of all burnable trash ... all kitchen wastes ... *automatically, silently.* Available in deluxe white enamel with chrome for kitchen installation or new, rich taupe Silicone finish for utility room or basement. Both models offer trouble-free service. *There's nothing to watch ... nothing to turn.*

Economical CALCINATOR is priced within the budget of mass-production development housing. Write Dept. HH for specification sheets.

Available for operation with electricity, natural or manufactured gas and LP gas.

**CALCINATOR DIVISION — VALLEY WELDING & BOILER CO  
 BAY CITY, MICHIGAN**



**WHEN MENGEL  
BUILDS  
YOUR "WALLS"  
YOUR  
COST SHEETS  
LOOK  
MUCH BETTER!**

*...and so  
do your homes!*



Many builders let Mengel furnish their *partition walls* wherever closet space is necessary because Mengel Wall Storage units eliminate expensive wood-stud and plaster construction. Used in multiple, these units replace walls and conventional closets.

The result is 25% to 40% more usable storage space per square foot of closet because every inch of the beautiful plywood unit is usable: all shelves, clothes rods, and drawers are quickly adjustable to each owner's needs.

#### **Extra salability**

Smart, modern, prefabricated Mengel sliding door Wall Storage Units are typical features of today's \$75,000 homes — but because costs average 20% less than equivalent ordinary closets, you can put them in your \$10,000 houses as *major sales features*. On-the-job assembly averages less than half an hour per unit.

Mengel builds these plywood units in beautiful Birch for natural finish, or with Gum doors and Fir sides and backs for paint finish. Available in 3', 4', and 6' units with sliding doors. (A 26 1/4" closet with swinging door also available, usually for linens.)

For more information, see the Mengel catalog in Sweet's, Architects 16c; Builders 4a, or send this convenient coupon.

### **THE MENGEL COMPANY**

America's largest manufacturers of hardwood products. Growers and processors of timber. Manufacturers of fine furniture, kitchen cabinets and wall closets, veneers, plywood, flush doors, corrugated containers.



Cabinet Division (Department HH-652)  
The Mengel Company  
1122 Dumesnil Street, Louisville 1, Kentucky

Gentlemen:

Please send me, without obligation, complete specifications and other information about Mengel Wall Storage Closets.

Name \_\_\_\_\_

☐ Architect ☐ Builder ☐ Home Owner ☐ Student

Firm \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



# "G-E Remote-Control Wiring Helped Me Sell \$2,000,000 in Homes



## James D. Crow Reports From Dallas on G-E Remote-Control Wiring

"In the first stages of planning for our Lake Park Estates project, we decided to offer real convenience in living," reports James D. Crow. "We knew the G-E remote-control master selector switch was the modern symbol of convenience, and we decided to capitalize on it in selling our homes which are priced at \$25,000 and \$40,000.

"As the project progressed, we were pleased to find that a complete remote-control wiring system with master selector switch cost only about \$50 more than a conventional wiring system. In our larger homes, with selector switches, for complete on-off control of lights at two convenient points, the extra cost ran about \$70 more than conventional wiring.

"We feel our decision to use G-E remote control has been a sound one. It has given us a good point for our advertising, and it has given us a good talking point in our selling. And, most important, our home buyers are completely sold on it," concludes Mr. Crow.

*"At a cost of about \$50 per home, we have added a real selling tool to our Lake Park Estates project in Dallas," says James D. Crow of James A. Crow & Company, builders. "We've featured remote control in our advertising and made it part of our selling program."*



*"I WASN'T TOO SURE remote control could be installed economically," says Clyde Grubb, of Globe Electric, electrical contractors. "But, after the first few installations, we found we could make a good installation with real speed at low cost."*



"DEFINITELY HELPED US SELL," says Marvin Eder, of Service Realty and Investment Company, Peoria, Ill., about G-E remote control. "We've used it in two projects totaling 63 homes, and we are particularly pleased with the master selector switch as a sales tool."



"YOU CAN OPERATE LIGHTS WITH YOUR ELBOWS when your hands are full," says Mrs. R. S. Olson in the Brandywine Homes development, at Wilmington, Del. "We added this convenience for about \$35 per home," reports Philip Karl, vice-president of Culhane Construction Company, builders.



"MASTER SELECTOR SWITCH is the feature that starts conversation," reports Arthur Nalbandian, president of American Builders, Inc., Hackensack, N. J. "Twenty thousand people have come out to see it in our homes at Closter, N. J."

## GET THESE IMPORTANT SELLING AIDS

- 1. CONTRACTOR'S MANUAL**—Thirty-six-page manual gives you all the facts—layout, wiring time-savers, and important installation hints. Let this booklet bring you up to date on G-E remote control.
- 2. CONSUMER BOOKLET**—To explain the advantages of G-E remote-control wiring to your prospects, General Electric offers an informative, 8-page booklet. Write for a copy of the Remote-Control Consumer booklet, and ask for information on obtaining it in quantity.
- 3. LOCAL ADVERTISING MATERIAL**—A complete package of advertising material has been prepared for use with your remote-control program. Ask for this important selling aid.

### G-E Remote Control saves copper, too

Because G-E remote control uses small-diameter, low-voltage control wiring, you can now wire five houses using no more copper than it takes to wire four homes by conventional wiring.

For any of these aids, see your G-E Construction Materials distributor, or write Section D24L-66, Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.



IN COLUMBIA, S. C., remote control has really taken hold. Consulting Engineer G. H. Preacher has designed it into a number of commercial and public buildings in that city.

*You can put your confidence in—*

**GENERAL  ELECTRIC**



# P-s-s-s-t, John—folks are moving

*(...a million times a year!)*

**N**EITHER credit restrictions nor higher building costs are crimping Mr. and Mrs. America's yen for "a little place of our own."

That's why the home-building industry expects a steady volume of *1,000,000 NEW HOMES EVERY YEAR from here on in*. That's why the home today... and what is happening to it... is big news to the nation.

More and more news about the home is reported in *LIFE*—news about developments in architecture... building... site planning—about insulation, roofing, steel trusses, cantilevered ceilings, sidings, heat-

ing, paint, plumbing, home appliances, furnishings, stone, brick and glass.

And *LIFE* brings this news to the largest magazine audience in publishing history—23,950,000 people every week—an audience that grows in the course of 13 issues to 62,600,000 different people, *more than half the nation*.\*

As the U. S. moves into an era of a million new houses every year, the impact of *LIFE* on its mammoth audience becomes ever more meaningful—and productive—to America's manufacturers and distributors of products for the home.

\*From *A Study of the Accumulative Audience of LIFE*, by Alfred Politz Research, Inc.  
In this study, a *LIFE* reader is any person who has read one or more of 13 issues.

## LIFE'S AUDIENCE INCLUDES IN 13 ISSUES:

**62,600,000** people over age 10

**37,100,000** people who live in owned homes

**32,800,000** people aged 20-44

# LIFE

**First in circulation**  
**First in readership**  
**First in advertising**

**9 Rockefeller Plaza, New York 20, N. Y.**

**Hear Robert Montgomery, "A Citizen Views the News"**  
**—weekday evenings on most NBC radio stations.**



nto that new house!





# Fireplace Problems?



This simplified, standardized recirculating fireplace is sized for standard brick, with no cutting or fitting. It's quicker, easier, more economical to build and it's guaranteed not to smoke.

## Solve them with Bennett Products

- Warm-Aire Units
- Throat Dampers
- Ash Dumps
- Clean-out Doors
- Grates and Log Dogs
- Flexscreen



Bennett products take the "ifs" out of fireplace construction. Engineering, designing and producing a complete line of fireplace supplies has been our business for years . . . and we know our business. That's why Bennett is an acknowledged leader in its field . . . why you can be sure of perfect satisfaction—*everytime*—when you use our products. Write for catalog and details of the complete Bennett line of fireplace supplies to 652 Thorn Street, Norwich, N.Y.

### BENNETT-IRELAND INC.

Chartered in 1906  
NORWICH, NEW YORK



## The PIONEER VITROLINER prefabricated CHIMNEY for All Fuels!



Designed for one or two story construction using ALL fuels. Quality built for long life, constructed of an acid-resisting vitreous enameled flue liner, encased in a seamless tube of asbestos insulation with a metal covering.

Affords the architect the GREATEST flexibility of design and space saving features. Insures the builder quick, easy installation between ceiling joists where desired.

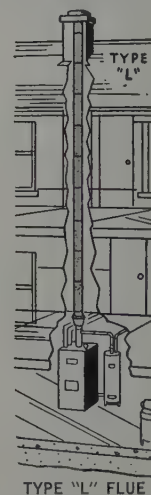
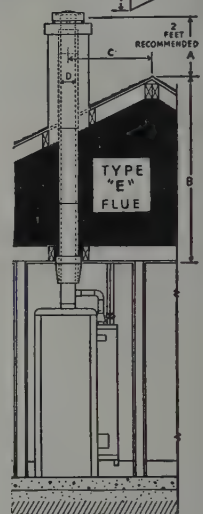
TAILOR MADE to fit the EXACT roof pitch of the individual house—no cutting or fitting required. Delivers complete in a package—nothing else to buy.

Vitroliner Chimneys are time-tested, proven practical all over America for over ten years. Used by home project builders and single contractors alike. Accepted by F.H.A.—Listed by Underwriters Laboratories — Approved by Insurance Rating Bureaus.

- SAVES FLOOR SPACE
- QUALITY BUILT FOR LONG LIFE
- PROVIDES ATTIC VENTILATION
- LOWEST INSTALLATION LABOR
- INSTALLED IN LESS THAN 1 HOUR
- LIGHT WEIGHT 10-15 LBS. PER FT.
- DIRECT FACTORY SHIPMENTS
- MFD. IN 6", 7", 8" AND 10" DIA.

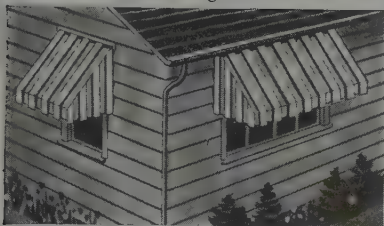
Mail us dimensions B, C, D, and E. If flue extends to basement give dimensions "B" from peak of roof to basement ceiling. (Type "L").

Investigate this modern low-cost chimney today. Write for quotations. Available in any quantity.



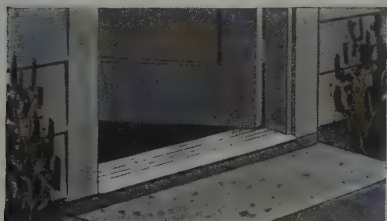
FOR FURTHER INFORMATION WRITE TO  
**CONDENSATION ENGINEERING CORPORATION**  
3511 W. POTOMAC AVE., CHICAGO 31, ILL.

### Attractive Awnings



The increasing use of aluminum awnings in light construction—as well as in commercial and industrial construction—is largely due to aluminum's basic advantages. Aluminum awnings reflect up to 85% of the sun's rays away from the building. They need not be taken down or stored so maintenance is no problem with fireproof, rustproof permanent aluminum. Several makes of fixed and roll type awnings are produced from Reynolds Lifetime Aluminum. They are available either in natural finish or in a wide number of color combinations. Write for a list of manufacturers.

### Quality Thresholds



Aluminum thresholds give that important "first" impression in quality home and commercial construction. Always bright, aluminum thresholds are economical in both initial cost and in maintenance. They are the lowest in cost of non-rusting metals. A wide variety of Reynolds designs provide a permanently snug aluminum threshold for every entrance or between rooms application—including pivot door installation.

### Durable Door Jambs



Modern homes—as well as modern commercial and industrial buildings—are "naturals" for aluminum door jambs because of aluminum's modern appearance and non-corrosive properties. Extruded aluminum door jambs are easily installed. Depending on jamb design and wall construction, sections can be sprung in place or fastened with aluminum screws. Mitered corners usually can be made without mechanical fasteners or welding. Hardware is screwed to tapped backing strips or wood framing. Write to Reynolds for details on these and any other architectural aluminum applications.



## Put Reynolds Architectural Service to Work on Your Designs



You need a "sharp pencil" today to keep building costs within the client's budget and still maintain your reputation. Part of the answer comes in building better and building faster with aluminum—the *only mass-produced metal that costs less today than before World War II.*

Aluminum is flexible in design, light but strong and easily worked with standard carpenter tools. To give you the most from aluminum—Reynolds, besides supplying this high quality metal, also offers specialized help through the Reynolds Architectural Service.

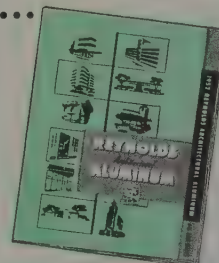
This service is available to architects for the asking. It is set up to answer aluminum design and construction questions and to help contractors build better, build faster with aluminum—the *light* metal that's the *right* metal for every type of construction.

For complete information call the Reynolds office listed under "Aluminum" in your classified telephone directory or write direct.

### NEW FREE CATALOG!

Send for your free copy of the new 1952 catalog on Reynolds Architectural Aluminum. Helpful, 3-color presentation of the architectural aluminum available and the advantages for each purpose. Covers design and fabrication, lists various types of finishes, shows applications and installation details. Illustrates decorative sheet—also embossed and perforated. Gives alloys most commonly used, etc., plus a complete list of helpful technical literature.

Send your request to Reynolds Metals Company, 2528 South Third Street, Louisville 1, Kentucky.

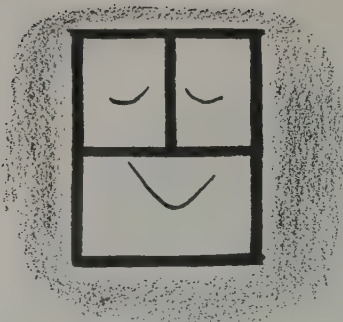


# REYNOLDS ALUMINUM

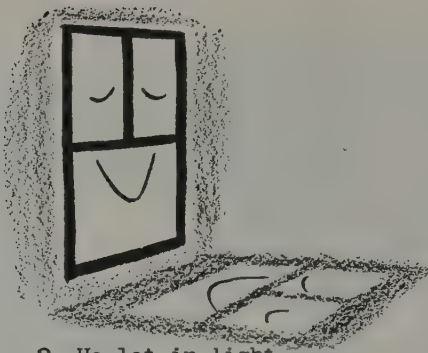
MODERN DESIGN HAS ALUMINUM IN MIND



# This is



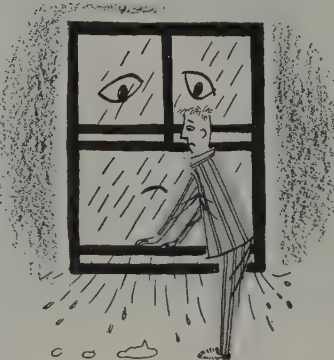
1. He was a good window



2. He let in light



3. He opened to let in air



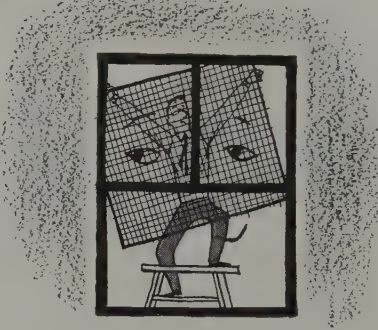
4. He closed to keep out rain



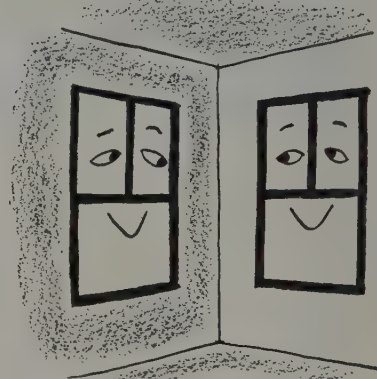
5. He let people look out



9. He adjusted to everyone's needs



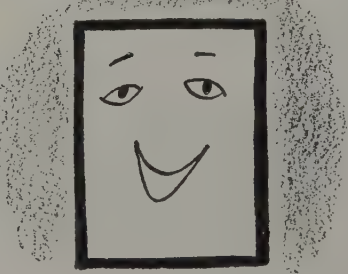
10. He adapted to all seasons



11. He was a major factor in house design



15. in which the Carrier Weathermaker Air Conditioner maintains 4-season comfort



16. and air conditioning pays for itself (less costly window construction, for one thing)



17. and the house is much more livable (with better lighting, a better view, for instance)

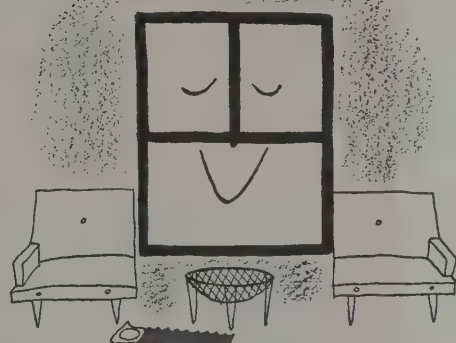
# the story of a window



6. He let people look in



7. He contributed



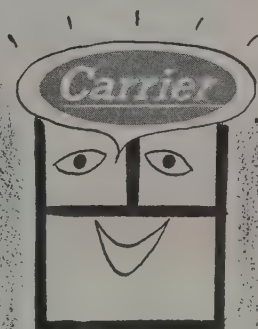
8. to modern living



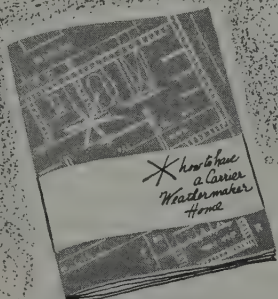
12. But overwork caused a breakdown



13. So he saw a psychiatrist



14. who told him about a new idea in houses . . . the Carrier Weathermaker Home

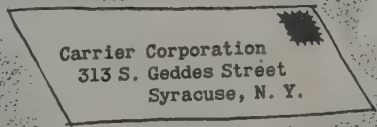


18. The whole story is in this booklet, which is free to all windows (and people).



AIR CONDITIONING • REFRIGERATION

P.S.: Of course, you can put the Carrier Weathermaker in any new house, many old ones.



Please send me "How to Have a Weathermaker Home."

Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



When you design

## Be sure of Complete Electrical Convenience

with **plug-in strip**

### "Plug-In"

Strip assures convenient electrical living—an electric outlet for every lamp, radio, clock or other appliance—wherever, whenever it's needed. This all-steel multi-outlet wiring channel mounts as a flush trim on baseboard or molding—can be painted any color—provides outlets every 6" or 18" all around the room.

**For Living Rooms** "Plug-In" Strip (Type CF-3) provides wall switch control for general lighting and constant service for clocks, radio, etc. Both services *from the same outlet*. Furniture can be arranged *at will* because there's *always* an outlet handy.

**For Kitchens** "Plug-In" Strip (Type CF-2) above kitchen counters provides *real* convenience. Outlets every 6" eliminate trailing cords.

**For Bedrooms** "Plug-In" Strip gives a s-p-r-e-a-d of convenience outlets for all the appliances now used in the bedroom.

Architects and builders everywhere are specifying "Plug-In" Strip, the modern, easy way to convenient electrical living. Be sure your plans include "Plug-In" Strip—*The luxury feature for only pennies more!*

EVERYTHING IN WIRING POINTS TO

## National Electric Products

National Electric Products Corp.  
1334 Chamber of Commerce Bldg.  
Pittsburgh 19, Pa.

Please send me further details on "Plug-In" Strip.

Name.....Title.....

Company.....

Address.....

Write for complete information. Use this coupon.

## YOUR FIRST FULL REPORT ON LEVER HOUSE

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to its era of design . . .  
the first *complete* story of America's  
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the *exclusive* design story  
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### YOU'LL SEE ALSO...

the liner "**United States**", with more aluminum  
than any other structure on land or sea.

**Frank Lloyd Wright's** latest church,  
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that takes on an attitude of worship."

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Possessions or Canada \$5.50

THE MAGAZINE OF BUILDING

## architectural forum

540 North Michigan Avenue, Chicago 11, Ill.

Steel Is First  
To Make  
Things Last



## Nothing nicer under the sun —

When the sun's agleam and the cool breezes blow, who wants to sit inside?  
That's the time to collect a few friends . . . a few steaks or burgers and buns . . .  
and dine in the great outdoors!

Why don't *you* do it? Your own yard—big or small—would make a delightful  
outdoor living area. All you need spend is a little energy, a little imagination,  
and a little money for furnishings.

There is a wide variety of steel outdoor furnishings to choose from—  
all reasonable in price. They're smart, colorful, modern. They resist corrosion,  
rot, fire and warping better than any other paintable furniture.

That means the pleasure they give is yours for years, no matter what the weather.

In any product, steel means longer life, greater satisfaction.  
Make steel your standard—and save.



*Metal sculpture, executed in Weirzin  
electrolytic zinc-coated steel, demon-  
strates the exceptional workability of  
this easily fabricated metal.*



**WEIRTON STEEL COMPANY, WEIRTON, WEST VIRGINIA**

**NATIONAL STEEL CORPORATION**





You know the Western Pines<sup>\*</sup>  
in rooms like this



Now meet the Associated Woods<sup>†</sup>  
in rooms like this!



White Fir's straight, even grain and light color make it ideal for interior paneling such as is shown here in this inviting living room.

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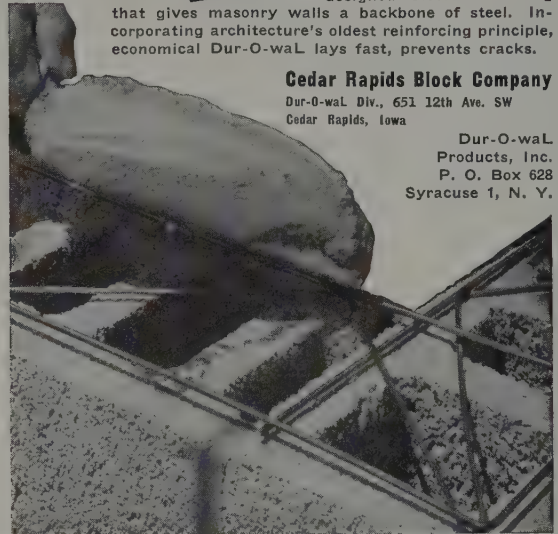
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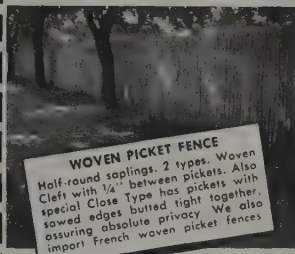
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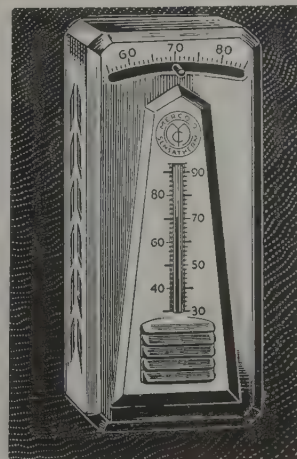
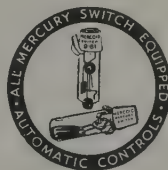
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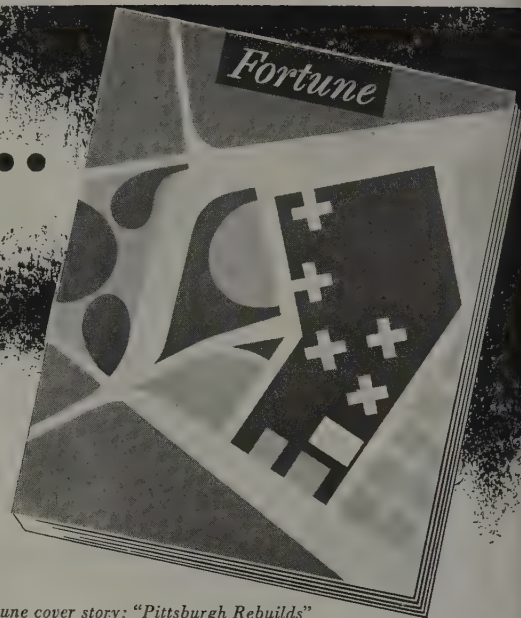
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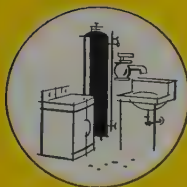
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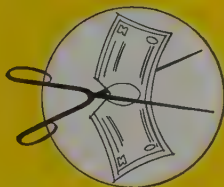
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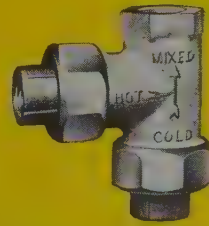


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# ADVERTISERS INDEX

Affiliated Gas Equipment Inc. ( <i>Bryant Heater Division</i> ).....	18
Airtemp Division ( <i>Chrysler Corporation</i> ) .....	162
Alliance Ware, Inc. ....	24
American Central Division ( <i>Avco Manufacturing Corp.</i> ).....	171
American Radiator & Standard Sanitary Corporation.....	46, 47
American Structural Products Company ( <i>Subsidiary of Owens-Illinois Glass Company</i> ) .....	62
American Welding & Manufacturing Co., The.....	182
Andersen Corporation .....	30, 31
Appelman Art Glass Works .....	178
Ardmore Products Company.....	196
Armstrong Cork Company.....	56
Auto-Lok Aluminum Awning Windows ( <i>Ludman Corporation</i> ).....	166, 167
Automatic Firing Corp.....	172
Avco Manufacturing Corp. ( <i>American Central Division</i> ).....	171
Avco Manufacturing Corporation ( <i>Crosley Division</i> ).....	64B
Avco Manufacturing Corporation ( <i>Lycoming-Spencer Division</i> ).....	35
Baker Furniture, Inc. ....	4
Bell & Gossett Company .....	13
Bennett-Ireland Inc. ....	188
Briggs Manufacturing Co.....	160A
Brown-Graves Co. ....	37
Bruce, E. L., Co. ....	64C
Bryant Heater Division Affiliated Gas Equipment, Inc.....	18
The Magazine of BUILDING.....	198
Bull Dog Electric Products Company.....	32
Bundy Tubing Company .....	179
Cabot, Samuel, Inc.....	200
Calcinator Division ( <i>Valley Welding &amp; Boiler Co.</i> ).....	182
Cambridge Tile Manufacturing Company, The.....	Cover II
Canvas Awning Institute, Inc., The.....	15
Carey, Philip, Manufacturing Company.....	160C, D
Carr, Adams & Collier Co.....	201
Carrier Corporation .....	192, 193
Casement Hardware Company, The.....	80
Ceco Steel Products Corporation.....	177
Cedar Rapids Block Company ( <i>Dur-O-Wal Division</i> ).....	200
Chambers Corp. ....	165
Chrysler Corporation ( <i>Airtemp Division</i> ).....	162
Church, C. F., Mfg. Co. ....	26
Conco Engineering Works, Division of H. D. Conkey & Company.....	43
Condensation Engineering Corp.....	188
Crane Co. ....	10
Crosley Division ( <i>Avco Manufacturing Corporation</i> ).....	64B
Curtis Companies, Incorporated .....	197
Delaware Floor Products, Inc. ....	73
Detroit Lubricator Co.....	207
Detroit Steel Products Company.....	75
Dow Corning Corporation .....	14
Dunham, C. A., Company.....	65
Dur-O-Wal Division ( <i>Cedar Rapids Block Co.</i> ) .....	200
Dwyer Products Corporation.....	33
Electromode Corporation .....	79
Eljer Co. ....	Cover III
Elkay Manufacturing Co. ....	202
Fairbanks, Morse & Co. ....	77
Fasco Industries, Inc. ....	178
Flintkote Company, The ( <i>Tile-Tex Division, The</i> ).....	64A
Fortune Magazine .....	206
Frigidaire Division ( <i>General Motors Corporation</i> ).....	153
General Electric Company .....	22, 23, 54, 160B, 184, 185
General Motors Corporation ( <i>Frigidaire Division</i> ).....	153
Great Lakes Carbon Corporation .....	170
Gunnison Homes, Inc. ....	19
Hall-Mack Company .....	21
Harnischfeger Corp. ....	27
Holcomb & Hoke Mfg. Co. Inc.....	168
House & Garden .....	42
Inland Steel Products Company .....	16, 17
Insulite Division ( <i>Minnesota and Ontario Paper Co.</i> ).....	38, 39
International Molded Plastics, Inc.....	66
Johns-Manville .....	178A
Jones & Laughlin Steel Corporation.....	5
Keasbey & Mattison Company .....	71
Kelvinator Division ( <i>Nash-Kelvinator Corp.</i> ).....	48
Kentile, Inc. ....	34
Kewanee Boiler Corporation .....	69
Koven Steel Swimming Pools, Inc. Division of L. O. Koven & Bro., Inc.....	170
Koven, L. O., & Bro., Inc. ( <i>Waterfilm Boilers, Inc. Division</i> ).....	194
Kwikset Locks, Inc. ....	1

Libbey-Owens-Ford Glass Company .....	12
Life Magazine .....	186, 187
Lindemann, A. J., & Hoverson Company .....	9
Louisville Cement Company, Inc.....	195
Ludman Corporation ( <i>Auto-Lok Aluminum Awning Windows</i> ).....	166, 167
Lycoming-Spencer Division ( <i>Avco Manufacturing Corporation</i> ).....	35
Malta Mfg. Co. ....	194
Marley Company, Inc., The .....	205
Masonite Corporation .....	64D
Mastic Tile Corporation of America.....	173
McKenna, Jay, G., Inc. ....	172
Mengel Company, The .....	29, 183
Mercoid Corporation, The .....	205
Miami Window Corp.....	178B
Minneapolis-Honeywell Regulator Company .....	180, 181
Minnesota and Ontario Paper Company ( <i>Insulite Division</i> ).....	38, 39
Minnesota Mining and Manufacturing Company.....	164
Mississippi Glass Company .....	204
Mueller, L. J., Furnace Company.....	190
Nash-Kelvinator Corp. ( <i>Kelvinator Division</i> ).....	48
National Door Manufacturers' Association .....	161
National Electrical Manufacturers Association.....	20, 175
National Electric Products Corporation.....	198
National Homes Corporation .....	60
National Lock Company .....	28
New York Wire Cloth Co.....	176
Nova Sales Co. ....	152B
NuTone, Inc. ....	182
Ohio Foundry & Manufacturing Co.....	164
Overhead Door Corporation .....	Cover IV
Owens-Illinois Glass Co. ( <i>American Structural Products Company, Subsidiary</i> ) .....	62
Pease Woodwork Company .....	44
Perfection Stove Co. ....	72
Perma-Stone Co. ....	64
Ponderosa Pine Woodwork .....	41
Precision Parts Corp. ....	174
Reflectal Corporation .....	78
Reynolds Metals Company .....	191
Rheem Manufacturing Company .....	163
Robbins & Myers, Inc., Fan Division .....	70
Roddiss Plywood Corp. ....	2
Rowe Manufacturing Company .....	152A
Rusticraft Fence Co. ....	205
Servel, Inc. ....	67
Sharon Steel Corporation .....	25
Soss Mfg. Co. ....	160
Steelbilt Inc. ....	204
Stewart-Warner Corporation .....	169
Taco Heaters, Inc. ....	74
Tile-Tex Division, The ( <i>The Flintkote Company</i> ).....	64A
Timken Silent Automatic Division ( <i>The Timken-Detroit Axle Company</i> ).....	203
Torrington Manufacturing Company, The .....	196
Tracy Manufacturing Company .....	40
U. S. Sliding Door Corporation .....	11, 189
United Steel Fabricators, Inc. ....	8
United Wallpaper, Inc., Varlar Division .....	45
Uvalde Rock Asphalt Company .....	76
Valley Welding & Boiler Co. ( <i>Calcinator Division</i> ).....	182
Van-Packer Corporation .....	154
Varlar Division, United Wallpaper, Inc. ....	45
Wasco Flashing Company .....	210
Waterfilm Boilers, Inc. Division of L. O. Koven & Bro., Inc.....	194
Webster, Warren, & Company.....	6, 7
Weirton Steel Co. ....	199
Weis, Henry, Mfg. Co., Inc. ....	68
Western Pine Association .....	200
Westinghouse Electric Corporation .....	209
White, David, Company .....	162
White-Rodgers Electric Co. ....	174
Wood Conversion Company .....	36
Yawkey-Bissell Hardwood Flooring Company .....	204
York-Shipley, Inc. ....	155, 156, 157, 158, 159
Zonolite Company .....	176

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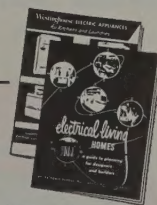
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So, for more house appeal, use Eljer Fixtures in your houses . . . you'll find them unexcelled in style, beauty and quality. For more information on Eljer Fixtures, see Sweet's Architectural File, Sweet's File for Builders or write Eljer Co., Ford City, Pennsylvania.



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